

**FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.**

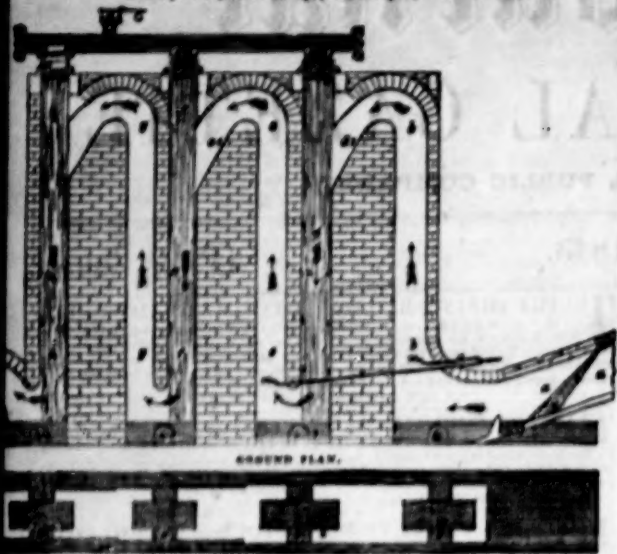
[PRICE 6D.]

around. They will certainly give you every explanation, but they cannot allow that they are responsible to Mr. Stone for their acts. They earnestly hope that you will attend the general meeting—and they would caution you against entrusting your money to any but known friends.

## HEDLEY AND RODHAM'S IMPROVED FLUES.

FOR CONDENSING AND PURIFYING NOXIOUS SMOKE AND GASES, AND FOR ARRESTING THE FUMES OF LEAD AND COPPER ORES, &amp;c.

Description of the drawing, from the specification enrolled:



The drawing represents the section and plan of improved flues, constructed according to our invention, and it will be seen to consist of a series of ascending and descending flues, connected with each other as hereafter explained. The gases, smoke, and fume arising from one or more fires, stoves, or furnaces, are made to pass through these flues, and then (the purified products) evolve from the chimney or other vent; and the flues are arranged, that streams or showers of water are caused to descend and mix with the gases, smoke, and fumes in the descending flues, by which means the gases, smoke, and fumes are washed and forced downwards. In the ascending flues no water is applied, consequently the gases, smoke, and fumes freely ascend, without any interruption, which they would not do if they were opposed by water falling upon them in their upward course. And it will be seen that the descending flues are placed so far apart from the ascending flues as to leave sufficient room to turn an arch at the top, in a sloping or inclined direction downwards, and the partitions which divide the ascending from the descending flues are rounded at their lower ends, the effect of which will be found to be that the rush of water down the descending flues will cause a quick and powerful draft in the ascending flues, and that the fumes, gases, and smoke will be purified by mixing with, and being washed by, the water in their downward course, and the draft in the ascending flues, will, at the same time, be so powerful that the partly purified smoke, gases, and fumes will rush up the ascending flues. A is the flue which comes from the fire, stove, or furnace in which the apparatus is applied; B is an ascending flue, leading in, and turning over, into the descending flue D, by a flue C; sloping down from the spring of the arch at the top of the flue B, above the flue C, is placed a water-box with a perforated plate at the bottom, D, through which the water in streams or showers passes down the flue D, and, mixing with the fumes, gases, and smoke, forces them downwards, and increases the draft in the ascending flue B, in consequence of the flue or passage D connecting the ascending flue B, with the descending flue D being sloped or inclined downwards from the spring of the arch, at an angle, as is shown in the drawing. Around the inside of the descending flues are ledges or projections, as A, of an inch to an inch and a half in breadth, of brick, stone, slate, or other suitable material, which are placed at a distance of from three to four feet from each other, with an edge sloping down, to prevent the possibility of any gases, fumes, or smoke escaping the water. The gases, fume, and smoke, in their downward passage, become considerably purified, and the matters carried thereby are separated, and mix with the water which passes into the tank or reservoir marked D D D in Fig. 2, through the side apertures A & B at the bottom of the flues, and are run off by a sluice at the end into other reservoirs, where the water is gradually drained off, and the matters are separated from the gases, fumes, and smoke removed. The water in the tank or reservoir D D D is as regulated by the sluice at the escape end, as to stand as high above the aperture at the bottom of the flue D, as will leave the passage into the ascending flue C to be of the same dimensions as the ascending and descending flues. The surface of the water being above the level of the aperture C forms a bottom to the flue, and offers such resistance to the current of gas, fume, and smoke, then partly purified, in its progress down the flue D, as to cause it to pass round into, and ascend up, the flue C, which communicates with the flue B at the lower end. The fumes, gases, and smoke then rise freely up the flue C, in consequence of a strong draught being kept up in that flue by its opening into the descending flue D, at its upper end, by a second inclined connecting flue E, sloping down from the spring of the arch where the smoke, gases, and fumes are forcibly driven down the descending flue D, by another strong shower or stream of water rushing from another perforated box placed at the top of the flue D, which mixes with, further washes, and purifies the gases, fumes, and smoke, and passes into the tank or reservoir D D D by the apertures A at the bottom of the flue. The surface of the water in the tank being also kept as far above the aperture at the bottom of the flue E, as to leave a passage equal to the size of the flues for the gases, fumes, and smoke to pass round, into, and to ascend up the flue E (which communicates with flue C at the lower end), in consequence of the draught being kept in the flue E, by its opening into the ascending flue B, at its upper end, by a third inclined connecting flue, sloping downwards from the spring of the arch, where the gases, smoke, and fumes are forcibly driven down the descending flue D, by another strong shower from a similar perforated box or cistern, placed at the top of this flue, which mixes with, and further washes, the gases, fumes, and smoke in the same manner as above described, and a further deposit is made through the opening at the bottom of this flue into the tank or reservoir D D D. The process will be repeated until the gases, fumes, and smoke are perfectly purified, and are then evolved from the chimney or other outlet in an innocuous state, and the deposited matters are removed from the tanks or reservoirs. It should be stated that the apparatus here shown and described is intended to be applied to the flue of a furnace used in the manufacture of sulphate of soda, but it is equally applicable to other works and manufactures where noxious vapours and smoke arise from the flues or chimneys where a considerable quantity of smoke is generated, or where mineral, or metallic, or other noxious matters are evolved into the atmosphere. In such cases, when the invention is applied, the purified vapours only are allowed to escape, the particles and other matters, previously carried by the gases, smoke, or fumes, being separated by the washings with water, and deposited. Although the flues are shown to be constructed of brick and stone, we do not confine ourselves thereto, as stone, metal, iron, or other suitable materials may be used. In some cases, where the impurities are not easily separated, we apply a series of jets, forming a sheet of water in an oblique direction within the first inclined or descending flue A, as is shown at F, and we also apply jets of steam to some of the ascending flues, as is shown at G, such jets of steam mixing with the gases, fumes, and smoke, assists the washing process, and quickens the draught in those flues, but these are not essential to our invention. A & B are the apertures from the flues into the reservoir or tank D D D, as a sluice to regulate the draught. I in a pipe for supplying water to the water-boxes, and the water is supplied by pipes from a reservoir, or by pumps. We would remark that this apparatus is not intended to be applied to small fires, stoves, or furnaces for domestic purposes, but is intended for industrial and extensive works, where the quantities of impurities are very great.

**THE MINES OF FUERNBERG.**—Copper ore, of various kinds, black, grey, and others, but principally what is called "copper pyrites," is found in great abundance at Church Clouston. The mines, which have been worked from time immemorial, with the exception of a temporary suspension during the reign of the sixth earl, in the reign of Charles I., are conducted on a larger scale than ever. About 200 men, women, and children, are employed in them, and no less than 100 tons of ore are raised monthly—the average produce of which is 11 per cent. Iron ore, called the "red oxide of iron," abounds in several places in Low Furness, where it is produced in large quantities from veins in the limestone. In the parish of Ullswater the ore was formerly so abundant, that the mines of Skelton and Aldburgh were continued the richest in the lordship of Furness. One shaft has been known to yield 120 tons in twenty hours. The parish of Dalton contains several mines, some of which, though they have been worked for above 400 years, yet seem inexhaustible in their stores. The quantity of ore raised annually in all the different mines may be estimated, in round numbers, to be about 100,000 tons; and the degree of its produce may be said to vary from 25 to 50 and 60, according to the nature of the ore. *—Furness's Furnace and Furnace, &c.*

## MINING CORRESPONDENCE.

## ENGLISH MINES.

## HOLDSWORTH MINING COMPANY.

**Jan. 16.**—Hitchins's shaft is sunk below the ninety fathom level 5 fms. 4 ft. 6 in., and the ground still of a favourable description for sinking. In the 110 fathom level west the lode is ten inches wide, and worth 91. per fathom. In the 100 fathom level west the lode is one foot wide, and worth 151. per fathom; at this level east the lode is unproductive; in the cross-cut at this level, towards the Flagstaff lode, the ground continues hard; in the winze sinking below the 100 fathom level the lode is nine inches wide, and worth 121. per fathom; the lode in the stopes, in the back of ditto, is sixteen inches wide, and worth 261. per fathom. In the eighty and ninety fathom levels, west of Hitchins's shaft, we are still driving to cut the lode; in the winze sinking below the ninety fathom level the lode is sixteen inches wide, and worth 121. per fathom; in the back of this level the lode in the eastern stopes is eighteen inches wide, and worth 321. per fathom; the lode in the middle stopes is two feet wide, and worth 451. per fathom; and the lode in the western stopes is eighteen inches wide, and worth 361. per fathom; in the eighty fathom level east the lode is fifteen inches wide, and worth 41. per fathom; the lode in the stopes, in the back of ditto, is sixteen inches wide, and worth 251. per fathom. At the seventy fathom level we have just commenced to cross-cut to cut the lode west of Hitchins's shaft. In the eighty fathom level, on the north branch, and in the sixty-two fathom level, both east and west, but little of the lode has been taken down during the past week; in the deep adit east the lode is two feet wide, chiefly composed of spar, capel, and mauler. The pitches are, without alteration.

F. PHILLIPS.

## TREGLIAN MINING COMPANY.

**Jan. 16.**—The lode in the engine-shaft, sinking below the sixty-two fathom level, is very large, and composed of spar, peach, mauler, and yellow ore, producing about eight tons per fathom of the latter; our progress in sinking has been very slow of late, in consequence of an increase of water, and having had some breakages to the engine, &c. The lode in the sixty-two fathom level east is of a very favourable description, yielding from two to three tons of ore per fathom, and worth about 41. per ton. We have done but very little in the fifty and east during the past week, from not being able to draw the stuff. We have sampled to-day, at Wadebridge, (computed) sixty-three tons of ore.

J. NIXON.

## TRETOL MINING COMPANY.

**Jan. 16.**—The lode in Henwood's shaft, sinking under the forty fathom level, is eighteen inches wide—good tribute ground. The lode in the forty fathom level, east of Henwood's shaft, is one foot wide—very good tribute ground; ditto, west of Henwood's shaft, is eight inches wide—good tribute ground. The lode in the thirty fathom level, east of Henwood's shaft, is fourteen inches wide—unproductive; we have not discovered any more lode in driving south on the cross-course at this level. The tin lode in the back of adit level, east of Morcom's shaft, is much as last reported. We have sampled this day sixty-five tons of ore. H. WILLIAMS. J. MORCOM.

## TRELEIGH CONSOLS MINING COMPANY.

**Jan. 14.**—At Christie's eighty fathom level east the lode is one foot wide, producing good stones of ore; the lode is looking more favourable. At the seventy west the lode is one foot wide, but very little ore. The sixty is driving to get under Garden's shaft. At the fifty west the lode is eighteen inches wide, singly, but not much ore. The forty west is worth 51. per fathom. At Good Fortune the fifty west is worth 51. per fathom. The forty-four east is worth 41., and the thirty-four east is also worth 41. per fathom.

W. SYMONS.

## WEST WHEEL JEWEL MINING ASSOCIATION.

**Jan. 16.**—The ground in the eighty-five cross-cut is rather harder than last reported. The seventy east, on the south branch, is worth 41. per fathom; the lode in the winze, above this level, is worth 51. per fathom; the seventy east is worth 51. per fathom, and the ground more favourable for driving; ditto west, the lode appears to be opening, and the ground about it very favourable for driving. The fifty-seven east, at Wheel Jewel lode, has not been taken down since our last report; the winze sinking below this level is worth 151. per fathom; the winze sinking under this level west is worth 51. per fathom. The winze under the forty-two east, on this lode, is worth 201. per fathom.

S. LEAN.

## UNITED HILLS MINING COMPANY.

**Jan. 17.**—At the seventy fathom level, eastern end, the lode is four and a half feet wide, two and a half feet of which is producing ore of fair quality; western end, lode two feet wide, with stones of ore. At the sixty fathom level, in the eastern end, the lode is five feet wide—coarse in quality; western end, lode four feet to five feet wide, two and a half feet on the north part good ore. At the fifty fathom level the lode is three feet wide, and very good ore. At James's shaft the lode is two feet wide, one foot on the north part good ore. At the forty fathom level the lode is three feet wide, producing but little ore.

S. H. PHRASE.

## CORNUBIAN MINING COMPANY.

**Jan. 16.**—The lode in the seventy fathom level, driving west of the engine-shaft, is two feet wide, composed of soft spar and mauler, which we consider congenial to lead. In the sixty fathom level west we find the Chilverton lode one foot and a half wide, producing a little lead, we shall now cut north to see the north lode. The fifty fathom level, west of Murray's shaft, is favourable for driving, the lode is two feet wide, but no lead at present. The pitches in the back of the sixty fathom level are looking well—rather improved. We shall sample on Friday next about 40 tons of lead ore.

JOHN WEBB.

## FOREIGN MINES.

## IMPERIAL BRAZILIAN MINING ASSOCIATION.

**Guapá, São, Nov. 3.**—I regret I cannot call your attention to an improved process, either from the mine or stamps; the gold returns present a very poor ten days' produce.

**Nov. 12.**—I omitted in my last to inform you that I forwarded, by the Morro Velho troop, which left that place on the 30th ult., 108 lbs. Troy of gold dust, after payment of the duty, with the necessary gold and letter to the agents. The cross-cut alluded to in particulars 18 of your letter of the 2d August, has been examined, but, I am sorry to say, no vein of any promise was met with. The mine, I regret to observe, continues poor; two "bad rays" of work have been broken from the backs over the fourteen fathom level, at Walker's. The gold returns show a little improvement in the produce from the stamps for the last ten days.

## Gold Report.

	Lbs. oz. dw. gr.
From 25th October to 28 November (no particulars).....	11 6 15 0
From 29 to 12th November—stamps.....	14 6 2 0
Total.....	25 12 0
Total from 1st July to 12th November.....	296 9 12 0
A remittance has arrived at Falmouth of 105 lbs. 11 oz. 8 dwts. of gold—value 45000.	

## BRAZILIAN COMPANY.

**Cabo Branco, Oct. 30.**—To-morrow the gold on hand will be sent to Rio for shipment to England, 123 lbs. 10 oz. 9 dwts. 11 grs. Troy, being, exclusive of the 3 per cent. duty, the produce from 21st August to 30th last, inclusive. [Arrived at Falmouth per Express packet.]

**Nov. 9.**—In my letter of 24th ult., I mentioned the very great difficulty experienced in breaking the lode in the bottom, from the many floors met with, and my anxiety to see the ground under them, and which I believed we were there approaching. A few days after a more solid stone was reported, and which (though, from accidents to our pumps, we have not yet sunk much through it) has continued to the present time. It is not my intention to enter into a long description of the supposed influencing cause of this change in our lode, as I wish to examine it a little more minutely before I do so. Meanwhile, I may observe, that Capt. Williams is of opinion, that it is the effect of a slide (and his judgment is good)—nevertheless, I do not agree with him, as I cannot see any indication of a slide in the lode; the country we have not yet got. My present impression is, that it is simply an enlargement of the lode, indicative of an approach to what is termed "Old ground," and the stones, both in appearance and value, confirm me in this opinion.

**Nov. 11.**—The improved gold report for the past week fully bears out my anticipations as to the better quality of the stone in the bottom. I regret to say, that, from an accident to one pump, on Thursday, we have done little this week. Nevertheless, this very fact has tended to strengthen my belief of its superior value, for an immediate diminution of the produce was the consequence. The water is again in flood, but, as the rains are now very heavy, I hardly expect to keep it so; however, next week I hope to break much ground there, as our new 10-inch plunger lift, at the thirty fathom level, will be fixed, and insure our keeping the mine dry.

W. CROFTWORTH.

Gold returns for three weeks to 11th November, at Rio. 900 lbs. 12 dwts. 17 grs. —Ditto for the month of October, 50 lbs. 11 oz. 13 dwts. 13 grs.

## ST. JOHN DEL REY MINING COMPANY.

**Nov. 16.**—Mines—Sinking continued in the three stamps. West End—Chambers driving. Pitman's and Smith's shafts sinking. New lode at Chambo, some upon footwall, after cutting through twelve feet of promising ground, and commenced driving on its course to hill. At Louisa, and east the lode widened. Then—A month of fine weather will suffice to complete this work; on the 15th the water was allowed to rise to the level of the Louisa lode—so much as required for the stamps kept in the lead. That part of Christie's stream not required for stamps has been conveyed to the amalgamation house.

**Nov. 8.**—Produce for October. 7471 lbs. 20 grs., equal to 71 lbs. 9 oz.

13 dwts. 3 grs. Troy, of which 7428 lbs. 60 grs. were from the stamps, and 48 lbs. 48 grs. from arrastre; the produce per ton is low, being only 3.50 cits.—this is from the ore not having been picked during the month; 2064 tons were stamped. Mine—You will be very glad to learn, that the lode in western part of the mines (the Champion division), which has of late been reported as small and disordered, was discovered yesterday as true and loyal as ever, running about six feet big. The eastern, or Louisa, mine furnishes about one-fifth of the ores extracted, and the Chambo about one-third, equal to one-half between them—the other half coming from the other mines. In a year's time, the latter mine, by being extended west, where there is a fine large lode, will become, I hope, the chief source of the supply of ore. I have commenced extending west on the Chambo, where I hope to lay open still further sources of good ores. By continuing this system of extension on known lodes, in two years you will have such resources of ore laid open that 100 stamp heads will make little impression on it; it is true it is only of moderate produce, but its abundance is immense. Store Report—There are twenty-four horses working at the whims; the hauling machine will soon be at work at Robertson's and Davy's shafts, and the four horses this will cut off will work at a new whim at East Cochoira; there is scarcely any timber, either for the mine or mechanics. The rebellion has caused great devastation among the oxen, both the belligerent parties having eaten a great many of them. Some stores have been stopped for want of timber, but every exertion is being made to obtain a supply; of gunpowder and saltpetre there is an excellent stock. I have hitherto paid much attention to the works; I shall now closely consider the economy of the establishment; every department shall be strictly looked into, and, when reductions can be made advantageously, they shall, you may depend. The quantity of refuse stone thrown over the spalling floor indicates that 2700 tons of ore, good and bad, must have been raised from the mines per month; this is very satisfactory, and shows the expediency of erecting more stamps, for, no doubt, the refuse, though poor, will more than pay the cost of stamping; the mines must be in good order to yield such a quantity of ore. The produce of the Chambo mines has fallen off since 1840 from 45 cits. per ton; this is owing to the workings, which, instead of being six or seven feet wide, are now twelve or fourteen—thus six or seven feet in width of good-for-nothing kills are stamped along with the ore.

C. HERRING.

## ALTEN MINING ASSOCIATION.

With reference to Mr. Woodfall's report, inserted in the Mining Journal of the 19th December, more particularly as regards the new discovery (Wilson's lode), the following extracts are made from the despatches just received from Alten. The mining report lies at the office, for the inspection of the shareholders:—

**Wilson's Lode.**—The workings on this discovery fully support their character; and are equally, or more, promising than when Mr. Woodfall left. Twelve fathoms of ground were expended during the month, producing thirty tons of ore at 2.5 tons per fathom, equal to three tons of copper. At the settings of November we commenced a regular sink on the lode that we were working on when Mr. Woodfall was here. Three fathoms from the surface had already been stopped up; after sinking another fathom, I was induced to suspend the sinking, and drive a level instead, at right angles from the lode, with a view of intersecting a parallel lode, discovered since the commencement of the month to the south of the other, and of a more promising character. Towards the end of the month, after driving about a fathom, they broke into a very fine lode, which, within these last few days, has been cut through; it is a solid lode, between three and four feet broad, diverging at an angle of about 15° south from the first lode; it appears very regular, and consists at present of solid prills; on the whole, we have driven on it for about one fathom, and have found it thus far uniformly rich. Besides these two main branches, there are several smaller ones as yet unexplored. Viewing the whole, it presents one of the most promising aspects the association has experienced on this side of the Fiord. The lode in the bottom level, at this moment, is returning full four tons to the fathom of ten to twelve per cent., and it is remarkably regular, with perfectly smooth walls.

**United Mines.**—The returns from this mine will have fully answered our expectations. Forty-six fathoms of ground have been expended, averaging fully two tons to the fathom, or ninety-two tons, estimated by assay to produce 4.6 tons of copper, at an expenditure of about \$660. The stopes under the eighty fathom level will have given about two and a half tons to the fathom, and of better quality than usual. Our expenditure, including every charge on this side, except mine and Mr. Engstrom's, for the three months, will be between \$12,000 and \$13,000. The returns for the same period—and they have been taken with the greatest care, and anxiety not to exceed—subjecting all the stocks to assays, the samples being taken weekly, as the ores are measured, will not be less than forty-eight tons of copper, unless some very sudden and unexpected change should take place, which does not appear very likely, from the present appearances of the workings. By the settling accounts for the year, now transmitted, I think you will find it satisfactorily proved, that the smelting, if amply supplied with ores from this side, can be brought to a less cost than that of 1839; it does not now exceed \$6.3 to \$7. You will observe that during the last two months we have smelted equal to 600 tons of ore, while our estimates from the mines for the same period have been about 450 tons.

## ANGLO-MEXICAN MINING COMPANY.

**Guamavato, Nov. 11.**—The San José vein, in El Cedro, has again declined a little, and the signs of ore in the cross-cut Edwige disappeared. The level of San Felipe, on the other hand, continues encouraging, and the water in the mine gradually lessens. The impediment occasioned by scarcity of powder has been removed, a supply having been obtained sufficient for six weeks' working. A considerable falling off has taken place in the mine of Asuncion, both in quantity and quality. The ore in the frents of San Gerónimo has become almost extinct, but continues upwards, and a pozzo will be opened on some good ore that remained behind. The pozzo of San Bruno continues to yield a small quantity of very reasonable terros. The campos are in a fair state once with another, but some of the businesses have become dissatisfied at the prices paid in the last sale for their ore. The water is going down fast, and next week the level of San Gregorio will probably recommence driving, and contribute to the produce of the mine, for there was some ore in the frents when the water last rose upon it.

**Nov. 18.**—The plan of San José in the Cedro is very variable, an improvement having taken place, the labor in every respect looking well. In the San Edwige cross-cut there are no new appearances. The ground in the San Felipe level continues very promising. In respect of water there is a gradual diminution, very consoling, as it indicates relief in this respect during the dry season. The mine of Asuncion continues very dull, owing to the diminished ley of the ores, and the scarcity of workpeople. Active measures have been taken to increase the ventilation of San Juan workings, which are already considerably cooler, and will become more so still in the course of the present week. In the dead works there is nothing new. The level of San Gregorio recommenced driving the night before last.

## MINING NOTICES.

**MARBLE QUARRIES AND COAL BEDS IN IRELAND.**—In mineral surveys lately made by one of our correspondents, Mr. St. Pierre Foley, on the estates of the Earl of Kingston and Sir Lucius O'Brien, Bart., in the counties of Cork and Clare, beds of coal, anthracite, culm, ironstone, and various descriptions of doler, black and variegated marbles, have been discovered. The beds of coal lie in prolonged basins, between the Comeragh Mountains, which separate the counties of Tipperary and Cork and the Killybegg hills, in Cork, and between Ennis and Ennistymon, in the county of Clare, and are all of the anthracite description. The strata, sunk through to the coal, are sandstone flag, grey and black shales, with nodular clay ironstone, chiefly found in detached spheroidal blocks and black indurated shaly ironstone, in regular strata and thick beds of aluminous and ferruginous schists. Besides the marble, adapted for chimney pipes, already proved, an extensive quarry of lithographic marble has been opened, and proved also, near Mitchelstown. In the coal strata vegetable and fresh water fossils have been found. The shales showed in calcimeter and the tetrapora fluviatilis of Phillips, and the sandstones chiefly contain the fresh water fossils. The limestone in the neighbouring boundaries is essentially.

**VIRGIN GOLD.**—A paper was read last week, at the Royal Academy of Sciences, Paris, on the recent discovery of a mass of native gold, weighing 11 lb. (about 20 lbs. English), on the eastern side of the Ural. This enormous mass, which is double the size of any hitherto discovered, was found at a few feet beneath the surface, under singular circumstances. The establishment formed at this part of the Ural, for the purpose of seeking for gold, had tried every part of the ground near it, and the speculation being deemed a hopeless one, it was abandoned, and the buildings which had been erected were demolished. It was precisely in the ground on which one of these buildings had stood that this mass of gold was found. M. von Humboldt, who made the communication to the Academy, added some interesting facts relative to gold mining industry in Russia. It appears such is the prodigious increase of washed gold in Russia, and especially in Siberia, to the east of the southern chain of the Ural, that the total produce in the year 1843 amounted to 16,000,000 lb., of which Siberia alone furnished 7,000,000 lb. This is the produce to the Russian Government, but we have reason to believe that the real amount of produce is larger, and that a per cent. in value is secured by the agents who are employed to superintend the operations.—*Goldsmith's Min.*

**LAUNDRY.**—A few days since the friends of Mr. W. Jones, of Ballyhy, met that gentleman at dinner, at the King's Head Inn, Llanidloes, in consequence of an action at law respecting some mining property having been decided in his favour on the 17th ult. I after the usual business, the health of Mr. Jones and his family was drunk with much enthusiasm, and in the evening five weeks were discharged and the town splendidly illuminated. The entertainment passed off to the satisfaction of all parties.

## PROCEEDINGS OF SCIENTIFIC BODIES.

## GEOLOGICAL SOCIETY OF LONDON.

DEC. 14.—Mr. MURCHISON, President, in the chair.

1. On the Ridges, Elevated Beaches, Inland Cliffs, and Boulder Formations of the Canadian Lakes and Valley of St. Lawrence. By Mr. LYELL, F.G.S.—Mr. Lyell's paper was concluded on the 4th January.

After advertising in his former paper, "On the Recession of the Falls of Niagara," and the observations which he made, jointly with Mr. Hall, in the autumn of 1841, Mr. Lyell gives an account of additional investigations made by him in June, 1842, in the course of which he found a fluviatile deposit, similar to that of Goat Island, on the right bank of the Niagara, nearly four miles lower down than the great falls. The fresh water strata of sand and gravel here alluded to occur at the Whirlpool; they are horizontal, about forty feet thick, plentifully charged with shells of recent species, and are placed on the verge of the precipice overhanging the river; they are bounded on their inland side by a steep bank of boulder clay, which runs parallel to the course of the Niagara, marking the limit of the original channel of the river before the excavation of the great ravine. Another patch of sand, with fresh water shells, was found on the opposite, or western, side of the river, where the Muddy Run flows in, about half a mile above the Whirlpool. From the position of these strata, it is inferred that the ancient bed of the river, somewhere below the Whirlpool, must have been 200 feet higher than the present bed, so as to form a barrier to that body of fresh water, in which the various beds of fluviatile sand and gravel above mentioned were accumulated. This barrier was removed when the cataract cut its way back to a point further south. The author also remarks, that the manner in which the fresh water beds of the Whirlpool and Goat Island come into immediate contact with the siliceous Silurian limestone, shows that the original valley of the Niagara was shaped out of limestone as well as drift; hence he concludes, that the rocks in the rapids, above the falls, had suffered great denudation while yet the falls were at or below the Whirlpool. Mr. Lyell thinks that the form of the ledge of rock at the Devil's Hole, and of the precipice which there projects and faces down the river, proves the falls to have been once at that point. An ancient gorge, filled with stratified drift, which breaks the continuity of the limestone on the left bank of the Niagara, at the Whirlpool, was found to be connected with the Valley of St. David's, about three miles to the north-west; this ancient valley appears to have been about two miles broad at one extremity, where it reaches the great escarpment of St. David's, and between 200 and 300 yards wide at the other end, or at the Whirlpool; its steep sides did not consist of single precipices, as in the Ravine of Niagara, but of successive cliffs and ledges. After its denudation, the valley appears to have been submerged and filled up with sand, gravel, and boulder clay, 200 feet thick. The author passes to the general consideration of the boulder formation on the borders of Lakes Erie and Ontario, and in the Valley of St. Lawrence, as far down as Quebec. Marine shells were observed in this drift in several localities—at Montreal attaining a height, probably, exceeding 500 feet above the level of the sea. Siliceous shells were found as far south as the western and eastern shores of Lake Champlain; they are all northern species, and imply a former colder climate. Rocks, in contact with the drift, are smoothed and rounded as beneath the drift in Northern Europe. The author next describes the ridges of sand and gravel surrounding the great lakes, and regarded by many as raised beaches. Those examined preserve a general parallelism to each other and to the neighbouring coast, and some of them have been traced for more than 100 miles continuously; they vary in height, and are often very narrow at their summit, and from 50 to 200 yards broad at their base. Cross stratification is very commonly visible in the sand; they usually rest on clay, or the boulder formation, and blocks of granite, and other rocks from the north are occasionally lodged upon them; they are steeper on the side towards the lakes, and they usually have swamps and ponds on their inland side; they are higher, for the most part, and of larger dimensions, than modern beaches. Mr. Lyell compares them all to the coars in Sweden, and conceives that, like them, they are not simply beaches which have been thrown up by the waves above water, but that many of them have had their foundation in banks or bars of sand; they are supposed to have been formed and aggraded in succession, and to have become beaches as they emerged, and sometimes cliffs, undermined by the waves. The transverse and oblique ramifications of some ridges are referred to the meeting of different currents, and do not resemble simple beaches. The author concludes that most of the ridges were formed beneath the sea or on the margin of marine sounds, some of the less elevated ridges, however, may be of lacustrine origin, and due to the oscillations in the level of the land since the great lakes existed; for unequal movements, analogous to those observed in Scandinavia, may have uplifted fresh water strata above the barriers which divide Lake Michigan from the basin of the Mississippi, or Lake Erie from Ontario, or the waters of Ontario from the ocean. Considerable differences of level may have been produced in the ancient beds of these vast bodies of fresh water, while the modern deposit and the subjacent strata may, to the eye, appear perfectly horizontal. The author then endeavours to trace the series of changes which have taken place in the region of Lakes Erie and Ontario, referring, first, to a period of emergence, when lines of escarpment, like that of Queenstown, and valleys, like that of St. David's, were excavated; secondly, to a period of submergence, when those valleys, and when the cavities of the present lake basins, were wholly or partially filled up with the marine boulder formations; and, lastly, to the re-emergence of the land—during which rise the ridges before alluded to were produced, and the boulder formation partially denuded. He also endeavours to show how, during this last upheaval, the different lakes may have been formed in succession, and that a channel of the sea must first have occupied the original valley of the Niagara, which was gradually converted into an estuary and then a river. The great falls, when they first displayed themselves near Queenstown, must have been of moderate height, and receded rapidly, because the limestone overlying the Niagara shale was of slight thickness at its northern termination. On the further retreat of the sea, a second fall would be established over lower beds of hard limestone, and a third fall would be caused over the ledge of hard quartzite sandstone, which rests on the soft red marl seen at the base of the river cliff at Lewistown. These several falls would each recede further back than the other, in proportion to the greater lapse of time during which the higher rocks were exposed before the successive emergence of the lower ones. There falls of this kind are now seen descending a continuation of the same rocks on the Genesee River, at Rochester; their union, in the case of the Niagara, into a single fall, may have been brought about in the manner suggested by Mr. Hall, by the increasing retardation of the highest cataract, in proportion as the uppermost limestone thickened in its prolongation southwards, the lower falls meanwhile continuing to recede at an undiminished pace, having the same resistance to overcome as at first. Mr. Lyell considers the time occupied by the recession of the falls from the Whirlpool to be quite conjectural, but assigns a foot, rather than a yard, a year as the more probable rate of recession, and that a channel of the sea must first have occupied near Goat Island, though associated with shells of recent species, to have claims to a very high antiquity, since it was buried in fluviatile sediment before the falls had receded above the Whirlpool.

2. Notice on a Suite of Specimens of Ornithoidontes, or Footprints of Birds, on the New Red Sandstone of Connecticut, United States. By Dr. MANTRELL, F.G.S.

These specimens were accompanied by a letter from Dr. Deane, of Greenfield (Massachusetts), the original discoverer of these curious footmarks, of which more than thirty varieties have been found, mostly bearing a striking resemblance to the tracks of living birds; they are invariably those of a biped, and, in some instances, the progress of the animal may be followed over as many as ten successive steps. One example is fourteen inches in length.

3. A Letter was read from Mr. W. C. Redfield to Mr. Lyell, on newly discovered Ichthyoidites in the New Red Sandstone of New Jersey, narrating his discovery of two distinct fish-beds, both containing remains of the genus *Palaemonites* in that formation, and also of ornithoidontes in the sandstone between the fish-beds.

4. A Letter was read from Mr. Charles Nicholson, accompanying some fossil bones found imbedded in the banks of the Brisbane River (New South Wales).

5. An Extract of a Letter was read from his Excellency George Grey, Governor of Adelaide, to Mr. Lyell, accompanying a section of the country between the eastern shore of St. Vincent's Gulf and Lake Alexandrina (New South Wales), and noticing some fossils obtained from that district.

## INSTITUTION OF CIVIL ENGINEERS.

JAN. 17.—The annual general meeting of this society was held on Tuesday evening. The report of the council, although much shorter than usual, was quite to the purpose, and conveyed to the members a very satisfactory account of the proceedings of the institution, which have regularly appeared in the *Mining Journal* during the past year. The papers read appear to have been of an interesting nature, and the discussions upon them which ensued, have elicited many valuable facts, which are recorded in the published minutes of the society. The increase of the number of members during a year of unexampled depression in the professions, as well as in all mercantile transactions, was extraordinary, and the financial affairs seemed, from the report of the auditors, to be satisfactory. The memoirs of the deceased members were read and concisely, avoiding unnecessarily eulogy, and yet alluding to the salient points in the characters of all who were mentioned. Telford medals were presented to Mr. Atkinson (Newcastle-on-Tyne), to Mr. Cotton (Governor of the Bank of England), to the Chevalier Comand (engineer of the railway from Amsterdam to the Hague), and to Mr. Wilkinson, for papers presented during the session. Telford and Walker premiums of books were also presented to Messrs. T. Casebourne, T. G. Hardie, C. Nixon, A. J. Adie, J. B. Birch, R. Richardson, J. Combe, C. Deane, A. Stephens, G. Ellis, and T. Chalmers, for communications and drawings sent to the society, and read at the meetings. The utility of these premiums, as encouragement for sending papers to scientific societies, cannot be doubted, and it gave us much pleasure to observe with what discretion they appeared to have been awarded. The president (Mr. James Walker) addressed the meeting at some length upon points which could not, with propriety, be introduced into the official report of the council. He gave excellent reasons for the election of honorary members into the society, showing that scientific acquirements, or the patronage, which from their elevated position they were enabled to extend to engineering in its various branches, had been the only motives for their joining the institution. He gave a very interesting memoir of Mr. Ewart, the late inspector of steam machinery for the navy; it was replete with anecdotes, and only of the subject of the memoir, but of his contemporaries and friends—Watt, Rennie, Robison, Dalton, Henry, and other eminent men with whom he was intimate, or connected in business, before he entered the Government service, in which he appears to have acted with that consistent uprightness which secured the respect and esteem of all with whom he came in contact. He then alluded to the me-

moir of Captain Hubbard, for which a medal had been presented to Mr. Cotton, who, amidst his onerous duties as Governor of the Bank of England, could find time to perpetuate the memory of his friend. Among the engineering works of this country, the Thames Tunnel, which has just been completed, was especially mentioned, and well merited praise awarded to Sir Isambard Brunel for the skill and energy displayed by him in the various difficulties which he encountered during the progress of the work. Professor Wheatstone's ingenious application of electro-magnetism for various purposes, was also mentioned, and some interesting facts relative to it were given. A member mentioned an interesting fact, that when the roof of a public building, erected some years since, was considered by the public unsafe, Sir Robert Peel sent for some members of the Institution of Civil Engineers (the present president being one of them) and upon their report directed certain alterations to be made before the building was permitted to be used, and that this led to the society demanding and obtaining a Royal Charter, under which it now is constituted.—The ballot for the council took place, when the following gentlemen were elected:—Messrs. J. Walker (president), W. Cubitt, R. Donkin, J. Field, and H. R. Palmer (vice-presidents), W. T. Clark, G. Lowe, J. Macneil, J. M. Rendel, G. Rennie, R. Sibley, J. Simpson, J. Taylor, T. Wicksteed, J. Miller, F. Brithwaite, and W. Cubitt, other members and associates of council.

The following papers were announced to be read at the next meeting, February 7th, until which time the meeting was adjourned:—"On the Comparative Friction of Beam and Direct Action Engines," by W. Pole, A.I.C.E.—"Description of a Drawbridge at Howcombe Creek, Devon," by G. C. Dubou, A.I.C.E.—"Description of the Roofs over Buckingham Palace, covered with Lord Stanhope's Composition," by P. Hogg, A.I.C.E.

## LONDON ELECTRICAL SOCIETY.—JAN. 17.

The following papers were read:—1. Assaying by Galvanism. By M. ROBERTS, F.R.S. Ed., M.E.S., &c.

This method he perfected many years ago; and it consists in using, for a positive plate of a galvanic pair, wet metal, which is next in the scale of affinity for oxygen, to the metal we wish to detect in a solution of a given ore.

2. Account of Dissection of a Second Gymnotus. By H. LETHBRIDGE, Esq., M.B., A.L.S.

This paper can be better understood when it appears in the *Proceedings*, accompanied by the series of plates with which it is illustrated.

3. Schenck's New Battery, consisting of zinc and passive iron, or of active and passive iron, arranged and excited after the manner of Grove's Battery.

4. Report of the Action of Mr. Armstrong's Steam Electrical Apparatus. By L. L. BOSCAWEN IBBOTSON, Esq., K.R.E., F.G.S., M.E.S., &c. This is a machine for obtaining electricity by the conversion of water into steam; under circumstances most unfavourable, a spark, fifteen inches long, was obtained, and a Leyden jar, five inches diameter, and coated six and three-quarter inches, gave 120 spontaneous discharges in a minute.

5. The Disturbance of Electrical Equilibrium. By M. ROBERTS, Esq., M.B., A.L.S.

## PROCEEDINGS OF PUBLIC COMPANIES.

## LONDON AND BIRMINGHAM RAILWAY.

On Monday a special general meeting of the proprietors was held at the Euston Hotel, Euston-station, for the purpose of authorizing the directors to apply to Parliament in the ensuing session to make a branch line from the Broomfield-station, in the county of Northampton, to the city of Peterborough. Mr. G. C. GLYN having taken the chair, dilated upon the eligibility of the proposed line, which would embrace in its route the towns of Northampton, Thrapston, Oundle, Peterborough, Boston, and Lynn, and a great part of the county of Lincoln. All the large landowners were in favour of the line, which would be forty-eight miles in extent, and cost, according to the engineering estimates, a sum of 500,000l.—A series of resolutions was then passed to carry out the object of the meeting.

## GREAT WESTERN RAILWAY.

A special meeting of the proprietors of this company took place at the company's offices, in Princes-street, Bank, on Thursday, the 19th instant, and was fully attended.—The chair was taken by CHARLES RUSSELL, Esq., who detailed the subjects mentioned in the report, which were partly that a communication should be opened between the Great Western line and Gloucester and Cheltenham, uniting at the latter place with the Birmingham and Gloucester Railway, the accomplishment of which was suggested, either by rating the proposed railway for a fixed term of years, so that the Cheltenham company might raise the sum necessary (500,000l.), under a guarantee of interest being paid by the Great Western Company, or by a purchase of the existing railway between Swindon and Cirencester by the Great Western Company, so as to complete their whole line throughout to Cheltenham themselves.—Mr. STURGE made a long speech in opposition to the plan of the directors, on the ground that they had sufficient work at present to look after their own railway and its branches, detailed accounts of the state of which were not yet presented to their proprietors, so that they might see their real position. He concluded by moving that either plan be sanctioned by the proprietors, which was seconded by Major WATTS.—After some remarks by Mr. Levi, Mr. Voutley, Mr. Fry, and others, Mr. DUNK moved, as an amendment, that the report be adopted, which was seconded by Mr. BAILEY, when the question was adjourned, in order that a ballot might be taken in the interim, before the meeting on next Thursday.—A proposal was then submitted for making a branch railway from Didcot to Oxford, which the CHAIRMAN said would meet with scarcely any opposition, would be about nine and a half miles in length, and would cost only about 120,000l.—The motion was passed unanimously, after which the meeting adjourned, the names present having been previously recorded.—The ballot will continue till next Thursday, when the chair will be taken at eleven o'clock.

## LONDON AND BRIGHTON RAILWAY.

At a general meeting of shareholders, held in the Grosvenor-rooms, Liverpool, on Wednesday, the 18th instant, WILLIAM EARLE, Esq., in the chair, on business (as stated in the advertisement) of the utmost importance to the proprietors, much discussion took place on the subject of the extension line to the west end of London, the want of confidence in the present board of directors, and the necessity of reducing the number from twenty-four to ten.—The meeting lasted several hours, and resolutions to the following effect were adopted:—"That the directors of the Brighton Railway do not enjoy that complete confidence of the company which is essential to the well-being of the concern," &c.—"That, under these circumstances, it is inexpedient to proceed in the present session with any bill for the extension of the line, but, in the bill for legalizing the loan notes, that a clause be inserted to reduce the number of directors from twenty-four to ten, and that a new election of the whole board take place, at a meeting to be called immediately after the passing of the Act."—Several other resolutions were passed, to reduce the directors' salaries from 5000l. to 1000l., appointing a deputation of the Liverpool shareholders to wait on the board in London, and that copies of the whole proceedings be sent to Manchester, York, Leeds, Glasgow, &c.

## CHELTENHAM AND GREAT WESTERN UNION RAILWAY.

A special general meeting of the shareholders in this company was held at the King's Head Inn, Cirencester, on Tuesday, the 18th instant, R. RAGE, Esq., in the chair, for the purpose of considering a proposition for leasing the line from Kemble to Cheltenham to the Great Western Railway Company.—To effect this, the sum of 200,000l. would have to be expended in the formation of two lines of rails of broad gauge on the Cheltenham Railway, between Gloucester and Cheltenham, and to re-arrange the line from the Birmingham and Gloucester Company the society of that railway.—Mr. BRUNEL (the engineer) explained how this sum would be appropriated, and, after some discussion, the proposition of the directors was adopted, a dividend of 25s. per share for the past half-year was declared, thanks were voted to the chairman, and the meeting separated.

## BIRMINGHAM AND GLOUCESTER RAILWAY.

At a special meeting, held at Dea's Royal Hotel, Birmingham, on Tuesday, the 18th instant, Capt. MORTIMER in the chair, the following resolution was passed:—"That a committee of shareholders be now appointed, for the purpose of inquiring into the cost, expenditure, and management of the Birmingham and Gloucester Railway Company, from the period of its opening to the present time; and also for the purpose of inquiring into the rates of fares and freight charged, and proper to be charged, by the company for the carriage of passengers, and into its other resources of present and future income; and also to inquire and consider as to the present and future transit of passengers and goods between Gloucester and Bristol, and between Bristol and Worcester, and as to the general management of the company's affairs;" and, on the motion of Mr. TAITT (of Cheltenham), seconded by Mr. FRIPP (of Bristol), a committee, consisting of four shareholders and three directors, was appointed.—A vote of thanks was passed to the chairman, and the meeting separated.

## GLASGOW AND GREENOCK RAILWAY.

At the half-yearly meeting of the shareholders in this company, held at Greenock, on the 6th instant, R. D. KEN, Esq., in the chair, a dividend of 1s. on the old shares, and 2s. 2½d. on a fraction on the 5th, was declared, and a balance of 2400l. 2s. 6d. carried to the credit of the company.—The report stated, that the experiment of third-class fares on the thorough line had increased the receipts about 10 per cent.—A plan was recommended of establishing a system of steam-boats on the Clyde, in connection with the

railway.—The retiring directors were re-appointed, and thanks having been voted to the chairman, the meeting broke up.

## ST. KATHARINE'S DOCKS.

The half-yearly general meeting of the proprietors of this establishment was held on Tuesday, the 17th inst., at the Dock House, St. Katharine's, for the purpose of declaring a dividend, and upon other affairs. The chair was taken by Mr. THOMAS TUCKER. The SECRETARY (Sir John Hall) having read the advertisement convening the proprietors, the CHAIRMAN observed, that, according to the provisions of the Dock Act, the accounts of the receipts and expenditure for the year ending the 31st of December last, had been accessible to the proprietors during the previous fourteen days; and the meeting would have now to declare a dividend. From the accounts it would appear that the credit balance on the 1st of Jan., 1843, was 150,556l. 2s. 10d.; that the like balance, brought forward on the 1st inst., was 131,164l. 12s. 9d.; and, after making suitable provision in advance for interest upon debentures, which will be payable in April next, and also for the payment of the dividend about to be declared, the net balance, or "rest," would amount to the sum of 76,135l. 8s. 8½d., being an increase as compared with the "rest" at the corresponding period in 1842—a result, considering the general depression of trade during the past year, of a satisfactory character. The quantity of goods landed in the St. Katharine's Dock in the year 1842, rather exceeded the tonnage of the preceding year, as would appear from the returns on the table, which also showed a slight increase in the tonnage of shipping that had entered the dock with cargoes during the like period. These returns further showed a small increase in the number of British vessels, and registered tonnage that had entered the port of London during the last year, as compared with 1841, and a decrease during the like period in foreign ships, a falling off generally in the employment of shipping engaged in the foreign trade with the port of London during 1842, having taken place equal to about 25,000 tons. He (the chairman) then adverted in detail to the return of shipping that entered the port of London with cargoes from foreign ports during the last two years, which established the following result:—

BRITISH.		FOREIGN.		TOTAL.	
Ships.	Tons.	Ships.	Tons.	Ships.	Tons.
1841.....	4622	1802	316,960	6619	1,315,210
1842.....	4705	1613	287,500	6308	1,200,000

More .. 130 .. 4,250 Less 377 .. 28,870 Less 338 .. 24,750  
The CHAIRMAN, after having briefly commented upon these returns, said it was the opinion of the court of directors that a dividend of 2½ per cent. for the half-year, ending the 31st December last, should be declared, the company defraying the charge of the income tax. The recommendation was, after some few remarks relative to the affairs of the establishment, unanimously adopted, and thanks having been voted to the chairman, the deputy-chairman, and the rest of the directors, for the zeal and attention they have paid to promote the prosperity of the company, the meeting was adjourned.

## PROVIDENT CLERKS' ASSOCIATION.

The second annual meeting of the benefit department of this association was held at the offices, 60, King William-street, London-bridge, on Monday evening, at which the chair was taken by GEORGE THOMAS, Esq. (Secretary to the Imperial Brazilian Mining Association). From the report, which was of considerable length, it appeared that the society was making a steady progress amongst clerks, and that the gross number of policies was 136, the average liability upon which was necessarily very small in comparison with the risks of all other offices. The annual income from premiums and dividends was 7541. 13s. 5d., and 550l. stock was purchased during the past year, making the total accumulation in the names of the trustees 5000l. stock, 3½ per cent., in addition to the guarantee fund of 5000l. Some members who had become distressed, had made applications to the benevolent department of this association, and their requests had been complied with. No death had occurred since the establishment of the institution, and the office expenses had been further reduced, the services of the board of management being, from the commencement, gratuitous.—The CHAIRMAN intimated that two of the trustees, W. G. Prescott, Esq., and Lionel N. de Rothschild, Esq., attended at the offices on the 13th inst., to inspect the accounts for the past year, and learn the progress of the institution, on which occasion they most kindly suggested (which suggestion the managers will have the greatest pleasure in attending to) that as there was at present only one application for a pension—viz., from the widow of a most respectable member, who had already had a gratuity presented to her, that the managers should ask the authority of the annual meeting on the 6th of February next to grant her a pension, although her husband had only contributed two annual subscriptions.—Mr. William Mallet (of Messrs. Currie and Co.'s) was elected a manager, and Mr. J. W. Welch, a member of the general committee, in place of Mr. Mallet.—A vote of thanks was unanimously passed to the trustees (Thomas Flaxing, Jeremiah Harman, W. G. Prescott, and Lionel N. de Rothschild, Esqrs.), and to John Abel Smith, Esq., M.P. (the treasurer), for their valuable and warm support to the association; also to Messrs. Lawford (the solicitors), the medical officer, and secretary, for their gratuitous services.—On thanks being voted to the chairman, deputy-chairman, and board of management, he (the chairman) said the institution only required the hearty co-operation of the members, in making its advantages known amongst clerks generally, to render it most successful.

NEWPORT AND NANTYGLLO RAILWAY.—The new Town Hall, at Newport, was opened, for the first time, on Thursday, the 19th instant, on the occasion of a meeting to take into consideration the expediency of forming a line of railway between the above places, the Mayor of Newport in the chair.—Reginald J. Bissett, Esq., who has taken so much interest in the projected line, spoke at considerable length; he explained the particulars of the project, the estimated expense, and the benefits to be expected. The whole length of the line would be 31 miles 31 chains, besides the branches to the various iron and coal works in the neighbourhood; the total expense was estimated at 275,000l., including the formation of the railway stations, machine engines, locomotives, and other stock, &c., &c., and, for this outlay, a net income of 33,500l. was confidently calculated upon—the whole, he considered it a subject of great congratulation, and he was satisfied that many years hence they would feel a just pride in having set the work moving.—Mr. Wood (of the British Iron Company), Mr. Lee (of Worcester), Mr. Brown (of Bristol), and several other gentlemen of influence in the neighbouring counties, addressed the meeting.—Resolutions were adopted, and a provisional committee appointed, and, from the unanimity which prevailed in the meeting, consisting of 400 gentlemen, there is no doubt the plan will be effectually carried out, and will be, in a commercial point of view, of immense benefit to the locality.—[We state understood that upwards of 30,000l. was subscribed immediately after the above meeting, and that the list is now rapidly filling up.]

EXTRAORDINARY DESPATCH.—(From a Correspondent).—The following statement, showing the extraordinary despatch used in drawing the cable out of the Whitwell Colliery, in the county of Durham, will astonish those unacquainted with mining operations.—The engine upon the A pit, which is of forty-five horse-power, has drawn from the Hutton, or Wall's-Had, seam, at a depth of sixty fathoms, in one day of twelve hours' working, 1407 tons, containing a cwt. of coal each; or a gross quantity of 653 tons, 16 cwt., which shows a despatch almost unparalleled in mining operations, when it is taken into consideration the time necessary for attaching and detaching the tubs at the top and bottom of the shaft, and the delay occasioned by the descending and ascending of the men and boys employed in the different departments of the mine. The engine draws one tub on each rope, and in eighteen seconds is performing it, which is an average speed of twenty feet per second; the greatest speed obtained by the tub in the shaft is twenty-six feet per second, or at the rate of eighteen miles per hour—railway speed.

WOOD PAVING—PATENT STEREO-FRAME COMBINATION.—This ingenious, and, what promises to be most successful, mode of adapting wood, not only for the thoroughfare of London, but for the paving of squares, balls, court yards, &c., and for pavements for railways, &c., is based upon the following facts:—That each block is supported by the four surrounding blocks, by being locked at each corner; a certain number of blocks being framed up, the frames support each other, in the same way as the single blocks support each other—that each series of frames, from the manner in which they are combined, lock the joints in each other, rendering it impossible for any pressure to disturb the road, the lateral pressure being counteracted by the nature of the combination—this concrete foundation, as required for most other methods, are unnecessary. One great advantage, too, is the ease with which a damaged block can be repaired, without disturbing the blocks immediately surrounding it; it only being necessary, with a chain, to cut away the upper half of the damaged block, and put in a portion of a new one filling the vacancy, the whole being thus made as strong as ever; also, the entire removal of any one block for water-pipes, &c., does not affect the strength of the mass, the combination, being in perfect, that, although giving support to each other, each block is independent of the other. It is impossible, without diagrams, to give a correct idea of the immense advantages this invention will be in the construction of pavements—see, for instance, the one so long talked of over Holborn-hill, which might be made, by the adoption of this system, at one-half of the amount of the estimates that have been given for other methods, and, at the same time, not interfere with the sewerage, or the crossing from one side of the street to another; or also for road-making across swamps, or bogs. A specimen of this wood paving was laid down in Lombard-street, for the Honorable Commissioners of the Survey of the City of London, in November last. The inventor is Mr. T. S. Davis, the treasurer and secretary of the National Sanitary Institution, Birmingham-planet, who will give every explanation, and exhibit models (which may also be seen at the Polytechnic Institution, and one office), which prove, at the same time, that his system has greater strength, greater elasticity, and is more free from noise, than any other in use.



## BRITANNIA LIFE ASSURANCE COMPANY.

1, PRINCE STREET, BANK, LONDON.

This institution is empowered by special Act of Parliament (4 Viet., cap. ix.), and is so constituted as to afford the benefits of life assurance, in their fullest extent, to policy-holders, and to present greater facilities and accommodation than are usually offered by other companies. The decided superiority of its plan, and its claim to public preference and support, have been proved incontestably, by its extraordinary and unprecedented success.

Assurances may either be effected by parties on their own lives, or by parties interested therein on the lives of others.

The effect of an assurance on a person's own life, is to create, at once, a property in reversion, which can by no other means be realized. Take, for instance, the case of a person at the age of thirty, who, by the payment of 25. 5s. 4d. to the Britannia Life Assurance Company, can become at once possessed of a bequeathable property, amounting to £1000, subject only to the condition of his continuing the same payment quarterly during the remainder of his life—a condition which may be fulfilled by the mere saving of eight shillings weekly in his expenditure. Thus, by the exertion of a very slight degree of economy—such, indeed, as can scarcely be felt as an inconvenience, he may at once realize a capital of £1000, which he can bequeath, or dispose of, in any way he may think proper.

Detailed prospectuses, and every requisite information as to the mode of effecting assurances, may be obtained at the office.

PETER MORRISON, Resident Director.

A board of directors attend daily, at two o'clock, for the despatch of business.

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## MEETINGS OF SCIENTIFIC BODIES.

IN THE ENSUING WEEK.

SOCIETY.	PLACE OF MEETING.	DAY.	HOOR.
Royal Geographical	8, Waterloo-place	Monday	8 1/2 P.M.
British Architects	16, Grosvenor-street	Monday	8 P.M.
Medical	Bolt-court, Fleet-street	Monday	8 P.M.
Entomological	17, Old Bond-street	Monday	8 P.M.
Royal Medical and Chir.	35, Berners-street	Tuesday	8 1/2 P.M.
Zoological	87, Pall-mall	Tuesday	8 1/2 P.M.
Society of Arts	Adelphi	Wednesday	7 1/2 P.M.
Medical Botanical	22, Ruckville-street	Wednesday	8 P.M.
Pharmaceutical	17, Bloomsbury-square	Wednesday	8 P.M.
Royal	Bancroft House	Thursday	8 P.M.
Antiquaries	Bancroft House	Thursday	8 P.M.
R. Society of Literature	St. Martin's-place	Thursday	8 P.M.
Naturalists Society	Bancroft House	Thursday	7 P.M.
Royal Institution	Albemarle-street	Friday	8 1/2 P.M.
Royal Asiatic	14, Grafton-street	Saturday	2 P.M.
Royal Botanical	Regent's-park	Saturday	4 P.M.
Westminster Medical	Exeter Hall	Saturday	8 P.M.
Mathematical	Crispin-street, Spitalfields	Saturday	8 P.M.

## PUBLIC COMPANIES.

MEETINGS.

Union Bank of Australia	25, Old Broad-street	Jan. 22	10
Great North of England Railway	North Gate, Derlington	21	11
Newcastle & North Shields Rwy Co.	Newcastle	24	12
Belgian Mutual Life Assurance	71, King William-street	24	12
Bristol and Gloucester Railway	White Lion Inn, Bristol	25	12
West Durham Railway	George and Vulture Tavern	25	12
Hereford Railway	Green Dragon Inn, Hereford	25	12
United Mexican Mining Assoc.	London Tavern	26	12
Duke of Cornwall's Harbour, Antwerp	London Tavern	26	12-1
Lincoln Railway and Dock Co.	Offices, 8, Old Jewry	26	12
Great Western Railway	Princes-street, Bank	26	11
London and Greenwich Railway	London Tavern	31	12-1
Consolidated Copper Mines of Colorado, Austin, Texas		31	12
London and County Bank	71, Lombard-street	Feb. 2	2
West of England Mining Ass'n	28, Threadneedle-street	2	12
London and Birmingham Railway	London Station	10	11

South Eastern Railway ..... 2d. per share. Jan. 21. As usual.

## DIVIDENDS.

Royal Canadian Mining Co.	2d. 10s. per share	3d. Broad-st. buildings	19.
Tinsworth Mining Company	1s. 6s. per share	4, Finsbury-square	27.
Natl. Loan Fund Life Assurance	5 per cent.	Offices	27.
Provincial Bank of Ireland	4 per cent.	Offices	27.
Wicklow Mining Company	25 per cent.	Offices	March 1.

## NOTICES TO CORRESPONDENTS.

THE MINING JOURNAL is regularly published about Ten o'clock on Saturday afternoon, at the office, No. 25, FLEET STREET, where it can always be obtained, and there is no cause for irregularity in its supply, so long as it is not neglected on the part of the agent through whom it is ordered; but, as respects its transmission to country subscribers, the blame is shared with the Post-office authorities.

More extensive premises than those lately occupied being found necessary, the establishment of the Mining Journal is REMOVED TO 25, FLEET STREET (opposite St. Dunstons Church).

STEAM POWER.—We have received a valuable paper, with illustrations, descriptive of Mr. James Sims's Improved Combined Cylinder Steam-Engine, which will appear in our next.

PATENT BLADE VALVES.—We have received the sample from Mr. Joseph Williams, which shall be tested on the earliest occasion, and the results given through our columns.

The reply of Mr. George Crane, to the communication of Mr. J. P. Budd, inserted in our last, will appear next week.

A Subscriber will find the information he requires in the series of papers on the Iron Trade, by Harry Bellhouse, Esq., which appeared in the Mining Review two or three years back, and continued in later Numbers of the Mining Journal.

SCIENTIFIC BOOKS.—The great care required in perfecting the engravings illustrating Mr. Sims's Improved Engine, and other papers, which were intended to form a Supplement, accompanying our present Number, has rendered a postponement of the publication compulsory. With our next, however, a series of articles and communications of unusual interest, and scientific importance, will be presented.

Mr. Gifford—Geologist—A Correspondent Subscriber—Argues the Continuation of Mr. Shaw's Reply to the Editor of the Civil Engineer—Mr. Taylor On Improved Method of Ventilating Mines—Reflections on the Management and Working of Collieries, &c., must, of necessity, stand over.

T. M.'s letter on the management of the Durham County Coal Company is far too important to be omitted.

Received—A Subscriber—J. V. M.—W. M.—L.—J. Follow of the Geological Society

THE MINING JOURNAL,  
Railway and Commercial Gazette.

LONDON, JANUARY 21, 1843.

\* Parties desirous of ordering the Mining Journal, can do so, either direct to the office, or through any newsvender or bookseller in town or country. Notices of irregularity in its delivery are requested to be forwarded to the office, where every attention will be made to rectify the cause of complaint.

The correspondence which appears in our columns on the subject of iron, as to the superiority of its manufacture by hot or cold-blast, as well as that affecting the prevention or consumption of smoke, with other interesting matter, will at once plead an apology for the brevity of our remarks, beyond those appended to the several letters. We must, however, endeavour to find space for some trite observations on one or two points which, at the moment, are of exciting interest.

As relates to the question of anthracite iron, we have the letter of Mr. BUDD, and next week propose giving that of Mr. CRANE, until the receipt of which, it is perhaps more prudent that we should be silent; while the note appended to Mr. BUDD's letter will explain our views. The question between Messrs. GRAHAM, their engineers, and Mr. HARTOP, with the anonymous, might, we think, be brought to a close, without personalities being indulged in—by a reference or commission, as proposed by us, to test the merits of hot and cold-blast iron. Several parties came forward ready to advance such object, but, for reasons we can readily understand, others declined, if they did not openly object to, the test being applied. We hope, however, that whether a commission be appointed or not, that the MINING JOURNAL will, at least, have executed its mission—that of the advancement of science, by the promulgation of knowledge.

As respects the smoke question, we are glad to find the disputants brought to close quarters; they appear disposed to keep up the fire (which, we trust, will not end in smoke), and, as we have reason to believe that the object of one, at least, is not that of pecuniary gain, but the demonstration of a principle he has introduced or adopted. We trust, that in after correspondence, should such be necessary, personalities will be avoided; and that the end sought for, that of promoting the public good, while private advantages may be secured, will alone be displayed. On this subject, as on others, we defer making any comments, until space admits us to do so, but which, on the present occasion, we feel bound to devote to our correspondents.

We had hoped that the Talacre Coal and Iron Company, with its worthy projectors and their coadjutors, would have been allowed to pass unnoticed until after the present month, as we were given to understand that the civic aldermanic magisterial inquiry would take place on Saturday next, and hence, our desire to avoid any further observation on the subject, with hopes (but fears) that the merits of the question would then be entered into. The proceedings in Dublin, as regards Mr. SHAW, who was entrapped into the fraudulent scheme, propounded by Mr. Alderman WOOD and others (a brief notice of which we embody in our remarks), and the several communications we have received, leave us, however, no other course than that of again drawing attention to the fraud, and which, we are told, it behoves us, moreover, to do, inasmuch that on the result of the meeting of Saturday next, depends much—not only as to the character of one of the aldermanic body, but, that which is of far more importance, the position in which the shareholders are placed—and from which they may, perchance, be relieved by the disclosures, which, on an investigation, must ensue. Willingly, most willingly, would we defer any observations we may have to offer, until the assembly of the Court of Aldermen; but when we find a gentleman of property, and highly respected in the sister isle, sacrificed by the shameful, we may say shameful, conduct of an alderman of the city of London, we feel that the law (which the "worthy" alderman should understand) is sadly misapplied where the culprit is freed, and the innocent made to suffer. From the following note of proceedings, it will be seen that, not only has Mr. SHAW been made bankrupt, because he was induced by Alderman WOOD, ex Deputy WESTON, JOHN DAVIS (of West Cork notoriety), and others, to be made a party to bills given for false consideration; but, upon the question being raised, in a court of law, whether HOWARD had given value for them (a very questionable point, we should say, were it not libellous), he (Mr. SHAW) is called upon to give security, or deposit 5000*l*. This is to render law valueless to the poor. We give the following as an outline of the proceedings:—

"IN RE SHAW & BANKRUPT.—An application was made in this case to supersede the commission, or grant an issue to try the *bona fide* nature of certain securities, in the hands of HOWARD, the petitioning creditor.—The LORD CHANCELLOR said it appeared, from the statements, that SHAW was a trader in Dublin, and certain bills were passed by him in his dealings with the Talacre Company; before they became due, he sold his property, and went to Belgium. A man named LEVISON, a dentist in Cheltenham, connected a fraud (by which many persons were defrauded)—viz., the Talacre Coal and Iron Company, by which he, with Mr. Alderman Thomas WOOD and others, prevailed on SHAW to give those bills, one for 3500*l*, and the other 3941*l*, at long dates. These bills were not a little suspicious, from the number of the acceptors, their large amounts, and length of dates. HOWARD was the holder of these bills when they became due; LEVISON, had he procured them, could not have recovered, and the only way for HOWARD to do so, would be to prove himself a *bona fide* holder. His lordship alluded to the conveyance of the house-property in Cheltenham to LEVISON, subject to mortgages, and HOWARD's acceptance of the bills as purchase money, without communication with the acceptors; and the draft of a deed of a recital of sale, without reference to the acceptors, he should say was not a real transaction. The court was bound to believe there was something irregular, when these facts were kept in view; and to see that HOWARD was a *bona fide* holder, it was necessary to try the question in a court of law; but he could not allow any man to bring it before a jury, without paying the full amount into court.—The counsel for the bankrupt inquired whether security to the amount of 5000*l*, would be taken, assuming Mr. SHAW to be willing.—The LORD CHANCELLOR said the security must be given before the Master, and he equal to money. It was then arranged that security as above should be given, as also for the costs; that no more should be directed to try whether HOWARD had obtained the notes for value, and without notice of the original transaction; the question to be tried the sittings after this term."

We have throughout maintained our position; and, what is more, we are enabled to do so to the full extent. We exposed the fraud on its first propagation. We have, further, through all its proceedings, brought before the public the attempts, and, unfortunately, in some cases, successful attempts, which have been practised to delude the public mind; and we feel pride, not only in referring to the past, but in recording the determination at which we have arrived as to our line of conduct for the future. Let the following paragraph suffice.

Having referred to the several communications received, as affects Ald. T. WOOD, and the proceedings of the Talacre Coal and Iron Co.; which, for reasons already assigned, we omit, we shall await the result of the next meeting of the aldermanic body, ere we offer any further remarks. It is, however, in closing our observations on the "adventure," only due to ourselves, after the many rebukes and observations made, as to our parsimoniousness with relation to the inquiry (?), to state, that if the Court of Aldermen do not fairly investigate the matter, so as to clear Mr. Ald. THOMAS WOOD from the charges made against him, or allow us the opportunity of substantiating the statements made through our columns, we will most certainly bring the worthy alderman to the bar of public opinion, so that the one or other may be declared guilty of misrepresentation, and, as we fear the result will prove, as affecting the alderman, that of fraud. Ald. WOOD says there is no prosecutor—Will he accept our services? Our evidence is complete and ready.

## DURHAM COUNTY COAL COMPANY.

We last week briefly adverted to the printed address of Mr. Matthias Dunn, late viewer of the Durham County Coal Company, in which he "rates" the board of directors in pretty round set terms, not only for having removed him from his office, but for general mismanagement and ineptitude, the reply to which, signed by the chairman of directors will be found in our columns of to-day. So far as the question is confined to the dismissal of Mr. Dunn from his post, we have nothing to say, for the directors used only the power with which they were properly vested by the proprietary, in dismissing from the service of the company an officer whose further services were not required, or which, in their discretion (wisely exercised or not), might be advantageously dispensed with, while it is apparent, on the face of the documents thus presented to notice, that the "elements" were of too far discordant a nature ever to harmonize or accord in a manner calculated to be promotive of the interests of the proprietors. In consequence of Mr. M. Dunn having declined giving his assent to the production of his pen being inserted in our advertising columns (the only course open, for the document partakes too much of a personal character, and is but of little public interest) we must necessarily confine our observations to a brief notice of the paper, which has led to the reply of the directors. We cannot, however, but express our regret, that Mr. Dunn, as a discarded officer of the company, should have felt himself warranted in adopting the course he has taken, however strong the grounds of his allegations, for the question naturally arises, whether, if such evils exist, and that he was precluded from a proper exercise of the duties of his office, he should have allowed them to lie dormant until the meeting to be held in February, when he might have availed himself of the medium he has now resorted to, of rendering to the shareholders that information of which he considers it to be of so much importance they should be in possession—more especially, as by the facts being divulged in the interim, opportunity would be afforded for testing the accuracy of the statements made, and thus the proprietors would have come to the meeting armed at all points; whereas, but for the dismissal of Mr. Dunn, they would have assembled, and possibly have separated in utter ignorance of the charges now preferred, the weight and importance of which are to be tested by the "review" and the "reply." The language employed by Mr. Dunn we stated last week was such as to be deprecated, and which, we regret to say, in this particular instance, lessens, in our opinion, the position in which Mr. Dunn stands, however injured he may conceive himself. We have neither favour our affection for the concerters, projectors, directors, or defamers of the Durham County Coal Company, and of this we have given more than one instance, in discussing the merits and demerits of the parties who have been associated with it, and we feel assured that the remarks we feel called upon to make, will be taken in the true sense and object with which they are written—viz., that of rescuing the charges of those personalities with which they abound, and confining the question to the limits of mismanagement, which, if proved to exist, we shall be the most ready to expose. We first take the Gordon and Greenwood Collieries; and the charges here preferred is, that an improvement suggested by Mr. Dunn, of employing tubs for corves, whereby a saving of 500*l*. to 1000*l*. per annum would be effected, was not sanctioned by the board, some "anonymous" influence, it is said, having been exercised; this equally "anonymous" assumption, clearly requires proof. Again, it is said that the practice of "economy" (so falsely termed) in not keeping up the necessary repairs of waggons, was attended with much inconvenience and loss of money, to the extent of 600*l*. to 800*l*. To this is added a complaint that the report of Mr. Wood, to which much importance is attached by Mr. Dunn, has never been placed in his hands, although frequently referred to at the board, and upon which matters of great importance require yet to be settled.

The next series of charges apply to the Whitworth Colliery; and here, again, we find complaint of the exercise of false economy, whereby a loss of 320*l*. to 250*l*. per annum is incurred, the workings being rendered not only inconvenient, but the principal exploring drifts having been standing for the past twelve months; it being broadly stated that from the incapacity of the board they were not "competent judges of questions of this nature, purely professional." Coxihe Colliery, the third on the list, we learn from Mr. Dunn's report, has, in a great measure, escaped from the evils which attended the other two, although he complains that "the powerful resources of the property have been completely nullified, inasmuch as an additional winning of coal, long since determined upon as the most desirable step for enhancing the value of the colliery, was abandoned, without any cause being assigned." Measures for subletting a tract of this coal are said to have been determined upon by the board, without Mr. Dunn (as the responsible viewer of the colliery) having been consulted. Having said thus much of specific charges, we proceed to the "general allegations," which embrace, among others, the charge—of all powers being withdrawn from the agents of ordering materials, whereby they are precluded from any knowledge of prices of the articles furnished, and, further, "dare" not find any fault with the quality. This charge will, doubtless, meet with explanation, for that the change was effected either to abolish jobbing, or, from favoritism, to establish a job, we think those who are conversant with the too frequent mode of furnishing supplies of materials to mines and collieries, will fully understand. Mr. Dunn observes—"the colliery agency throughout the trade is always the medium of these matters, because they understand the uses and qualities, and value of the articles, and there seems no reason why that department may not be as faithfully managed by them as by persons at Stockton, totally ignorant of the subject." We presume there is some reason for this, and which will form matter for inquiry at the forthcoming meeting. If jobbing existed before the change, the reason is clear, if that jobbing now exists, it is equally manifest the object the board of directors had in view, although influenced by a different motive. The ineffective representation of the collieries in the "coal regulation," Mr. Dunn observes, is indefensible, every other colliery in the trade having its representative, while the interests of the company are neglected from the incapacity and neglect of the party on whom this responsibility falls. The mismanagement in the land sale department alone, he considers has been attended by a loss or sacrifice of 1000*l*. to 1500*l*. per annum, while the cost of the establishment at Stockton (which Mr. Dunn pronounces to be useless) is nearly 3000*l*. per annum. The want of co-operation on the part of the agents, arising from circumstances to which reference is made, added to a general system of annoyance which has been manifested, from which we gather that the directors and the viewer have been at "daggers drawn"—but who is to blame remains yet to be told, it being quite clear, that, with such discordant "elements" as we have already observed, nothing beneficial to the interests of the shareholders could be expected. Mr. Dunn proceeds to remark on the exclusion of certain passages in his reports. With the first paragraph quoted we fully agree with the directors; it was not the province of the viewer, in such capacity, to write in such a strain, although, if, individually, he might feel himself misused, he could have brought the matter before the proprietors at their meeting in *proprio persona*. The second paragraph quoted is in bad taste, for, while Mr. Dunn complains of the direction being incapable to judge, he asks of the shareholders to give an opinion; it is true that he wishes the latter to submit the question to some "competent persons," but the ground, we feel, was too dangerous to be touched upon, if that the writer was not only clear in the assurance of faith, but truth. The last paragraph is to the effect, that, "provided all other departments are made to sustain and co-operate with it, I must further add, that there has been a saving in the colliery agency, under me, of nearly 600*l*. per annum." We must confess that we looked with some suspicion on this last statement, far, containing, as it does, a proviso; and having all these said legal definitions or provisos, we felt some difficulty in clearly understanding what it was that Mr. Dunn really meant, and having again and again entered it over, we are left as much in the dark as ever, for if the cost of management at Stockton of 3000*l*. be referred to, then we presume a loss of 1000*l*. has been incurred, but then this requires explanation. We cannot further enter into Mr. Dunn's review, and with a few words on the directors' reply shall close this notice.

Having given Mr. Dunn perfect fair-play in the preceding notice of his "review," we at once proceed to the "reply," in which the directors justify themselves in the course they have pursued as regards Mr. Dunn. Whether such justification be well founded or not, it is for the proprietors to determine. The first allegation, or charge, on the part of Mr. Dunn, we must say is not fairly met. The directors say that Mr. Dunn charges them with having dismissed him without notice, because he was about to lay before the proprietors at their next meeting, matters of "great importance," which they deny. "The directors having expressly told Mr. Dunn, when they dismissed him, that his salary would be paid to the current year, that is, to the end of April, which is equal to four months' notice." Now, wherever may be the question entertained by the directors as to the meaning of the word "notice," we must confess we do not consider it in the same signification as that of a domestic servant—"one month's warning, or one month's wages." We think there is a strong distinction between the word notice as complained of by Mr. Dunn, and the notice by payment of money which the directors claim to have been given. The law as to the money question is concerned, they may be right; so far as the moral question is affected, we think them wrong. Next, No. 2 objection, although, as it is admitted, the figures are not applicable to those in Mr. Dunn's review, and, therefore, we must say, that gentleman's letter has not been fairly answered, for those points to which we attach the greatest importance, have been allowed to pass by unnoticed. It would be only waste of space to enter further upon the details (?), which will be found at length in our columns, inasmuch that it is confined to a mere personal squabble between the directors and Mr. Dunn, while the main points, as we have already stated, are lost sight of. We have endeavored to give an outline of the charges, and direct attention to the defence, and, in continuation, cannot but recommend those interested, to attend the forthcoming meeting—and to be guided by any statements made, but to require for themselves, and, moreover, to hold aloof from the disputants, who may, either now, or here, for aught we know, have private objects in view, and intend to serve.

## ORIGINAL CORRESPONDENCE.

## RELATIVE MERITS OF THE HOT AND COLD-BLAST PROCESS.

Sir,—In your last publication, you intimated the Yatalyfer Iron Company, as having disputed Mr. Crane's patent, and endeavored to do so on several previous occasions, mentioned as reprehensively, on the same grounds—I ought, perhaps, to have set you right at the first, but I feared to be guilty of the impertinence of intruding our private affairs on the public. As, however, I do not wish the erroneous impression you have created to remain, I may, perhaps, without being deemed guilty of such impertinent intrusions, state to you, that the Yatalyfer Iron Company have never disputed Mr. Crane's patent—on the contrary, they claim to have worked under his license, and have frequently offered the payment of 1s. per ton. The matter in dispute with Mr. Crane is, whether certain letters are a legal license or not. I trust in what I have so reservedly stated, I am not inviting a discussion of our differences with Mr. Crane, for which, with all deference to you, the columns of a newspaper are quite unsuited. As a patentee myself, I should, with much regret, see a writ of *certiorari* issue to try the legality of Mr. Crane's patent, but we are the creatures of circumstances. What we considered the unreasonable terms of Mr. Crane, led to my invention of the cold-blast process with anthracite coal, and, if such be persisted in, I cannot be committed as to the course the Yatalyfer Iron Company may be advised to pursue; with such means of attacking the patent, as the successful use of cold air with anthracite coal affords, whereby the exceptional evidence, attending amongst many other groundless assumptions, that cold air would blow out the fire in the furnace, is all rendered worse than worthless. J. P. BURN.

Yatalyfer Iron-Works, Swansea, Jan. 18.

[We have to express our regret that any observation made by us should have tended to mislead our readers. We know that there is a question at issue between Mr. Crane and the Yatalyfer Iron Company, and our object alone was to draw the line between the public question of hot and cold-blast, and that of a private nature, to which we last week referred. We perfectly agree with Mr. Burn, that the columns of a newspaper are quite unsuited to the discussion of private matters.]

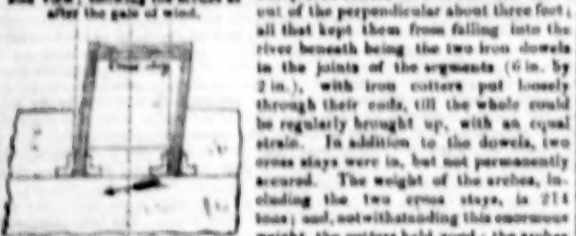
## THE MILTON IRON—Messrs. GRAHAM &amp; CO. &amp; Mr. HARTOP.

Sir,—In reply to Mr. Hartop's letter, in your Journal of the 14th inst., touching the aqueduct at Stanley Ferry, and the bridge and dock-gates, &c., at Glos., made at these works, I beg to say, through the medium of your valuable Journal, that I had the management in making the aqueduct, &c., from the commencement till the final completion, and approval by the engineers, Messrs. G. Leather and Son, of Leeds; and from my knowledge of those gentlemen, I will say they would not pass any piece of work that was not perfect. During the erection of the aqueduct, we were bound by contract to keep a clear passage in the centre of the old navigation, to allow the vessels on that canal to pass unimpeded, which passage we guarded as well as we could, by driving piles into the bed of the river, and on the top of these piles (about two feet above the surface of the water) we affixed walings, leaving sufficient room for one of the largest vessels, plying on that canal, to pass, and to prevent the vessels coming in contact with that portion of the work then in progress. This we found no easy matter, from the great number of vessels passing up and down every hour of the day; many of which, in spite of all we could do (owing to bad piloting, rapid currents, floods, &c.), came bang upon the wooden guard, with such force as to drive the walings against the works; but all the evil arising from such collisions was the displacement of the work from its proper line, which we brought back to its intended position; and in no instance, do I believe, a single flange was broken, nor do I know of one to this day. It has been no uncommon occurrence, since the opening of the aqueduct for the transit of traffic, for vessels to ground, occasionally, on the flanges (which flanges are inside the tank) for want of depth of water in the canal; notwithstanding, the flanges, "though out of sight," as Mr. Hartop has it, continue to hold the tank water-tight; and there never has been a single plate to replace, from the time of its being put in use to this date, to my knowledge.

During the erection, the arches for this work underwent a very severe trial of strength; and, to enable your readers the more clearly to understand it, I subjoin a diagram, showing the form of the arches carrying the tank.



As soon as we had got the arches up and into their places, and before we had time to secure the dowels, cutters, &c., that tremendous gale, which visited this part of the country, in January, 1839, took them in an oblique direction, and threw the whole out of the perpendicular about three feet; all that kept them from falling into the river beneath being the two iron dowels in the joints of the segments (6 in. by 2 in.), with iron cutters put loosely through their ends, till the whole could be regularly brought up, with an equal strain. In addition to the dowels, two cross stays were in, but not permanently secured. The weight of the arches, including the two cross stays, is 214 tons; and, notwithstanding this enormous weight, the cutters held good; the arches



were brought back to the perpendicular, and the same dowels and cutters still kept the places they then occupied, unbroken, though both were made of Milton hot-blast iron. I will leave it to the opinion of any person acquainted with such work, to say, if such was not a very severe test; say, I will even leave it to Mr. Hartop, although he is not a little ill-tempered with us Milton people; nevertheless, I think he will not say hot-blast iron, in that instance, was "found wanting." The dock-gates and bridge at Glos. were alike made entirely under my management, and every rib in these gates, as well as the beams carrying the tank of the aqueduct, were tested, before having these works, under a test calculated for the strongest cold-blast iron, and under the direct superintendence of J. W. Leather, Esq., the engineer—the deflection in each being carefully taken; and, when testing, such beam and rib received four blows from a heavy sledge-hammer, without any failure; and, after the pressure was taken off, they, one and all, retained their backs to their original height. The gates and bridge at Glos., as well as the aqueduct at Stanley Ferry, have ever been in work for some years, standing firm, and giving, I believe, satisfaction to all parties concerned with them; and have proved sufficiently strong, without the aid of one atom more iron than they had been made of cold-blast iron.

Mr. Hartop goes on to say, "If Alpha's thirst for information on this subject should take him to inspect the aqueduct in question, he cannot do better than visit Leeds, and, on calling at the iron works there, he will, on inquiry, find that the iron portion—having originally been the product of hot-blast—the engine, with every wheel, pinion, crank, and shaft, has been broken, and replaced by others, of cold-blast iron." The reading this, any one would be led to believe that such hot-blast machinery had been replaced by these works; but I do, in truth, positively deny that one atom of the machinery he alludes to was sent from Milton.

Again, quoting Mr. Hartop's statement—"Should Alpha wish for further proof on this subject, he cannot do better than call at the Milton Iron-Works, where, if truly informed, he will find that, some time ago, on accidentally breaking the driving-shaft of their large forge hammer, after having been some years at work, five others were cast, one much larger in diameter, of their own hot-blast iron, all of which broken in succession within eight weeks, at the end of which time one was made of cold-blast iron, and stood its work well." In answer to this, I beg to state, that in the month of June, 1838, the driving-shaft of our large forge hammer did break, which I, with as little delay as possible, replaced by one made of

timely of hot-blast iron, and which is in work at this time; and, during the period it has been in work, its duty has been double that of the previous one, made of cold-blast iron, for a like period, notwithstanding an increase of power in the engine of six horses more than at the time the cold-blast hammer was in work. Previous to the time of the accident, I had it in contemplation to increase the power of our forge-engine, and, as the shaft had broken under the lesser power, it would have been poor engineering not to have augmented the size of the new shaft, which I did one inch, in the journals only, not from a shadow of doubt as to the strength of our hot-blast iron, but to proportion it to the then proposed increase of power in the engine, and which was done shortly after. This I can positively assert is the fact, and not one shaft have we made of cold-blast iron since the adoption of the hot-blast process at these works. I have made a good many steam and other engines at these works of hot-blast iron, and in no one instance have I ever increased the proportions over those of cold-blast iron, but, in many instances, to the contrary. In concluding, the rolling mill engine at these works was erected by Mr. Hartop, all of which, I believe, was made of cold-blast iron; in May, 1838, the axle on which the large fly-wheel was fixed for working the bar-mill broke, and in December of the same year the crank axle of the same engine broke, both of which were replaced by axles of hot-blast iron, not of larger dimensions than the old ones, which are at this day as sound as they were the first day they were put to work; during the period they have been in work, more than double the quantity of iron has been rolled, compared to the same time the cold-blast axles were in work, and at a cost of 29 per cent. less in keeping in repair than those of cold-blast iron. J. HAWTHORN.

Milton Iron-Works, Jan. 18.

## RELATIVE PROPERTIES OF HOT AND COLD-BLAST IRON.

Sir,—As one totally unconnected, in the remotest degree, with the iron trade, perhaps I may be allowed to make a few remarks on the controversy that is now occupying so large a space in your columns, relative to the quality of hot and cold-blast iron; and, I am sorry to observe, that the subject has assumed somewhat of a personal character, as relates to the Milton and Elsecar Irons—a circumstance that I greatly regret, more particularly as I have the pleasure of being on terms of intimacy both with Mr. William Graham and Mr. Hartop, and for both of whom I entertain sentiments of the highest esteem; and, therefore, feel much concerned that anything approaching to personality should have been allowed to enter into the discussion, though it appears to me to have arisen more from the over zealous interference of would-be friends, than from any feeling of the kind existing between the parties themselves. I must say, that your correspondents, "An Original Subscriber," in the Journal of the 7th, and also "Another Original Subscriber," in that of the 14th inst., have indulged in remarks and insinuations with regard to the motives of Mr. Hartop, that are, I think, unjustifiable; as I know, from frequent conversations that I have had with Mr. Hartop on the subject, that his opinion as to the inferior quality of the hot-blast iron extends to that description of iron generally, and not to the Milton, or any other particular kind. Under these circumstances, therefore, I think your correspondents are not justified in trying to make it appear that Mr. Hartop's opinions on this subject are biased by the unworthy motives imputed to him in their communications, as I firmly believe that such is not the case, and that had any other parties, in place of Messrs. Graham and Co., of the Milton Works, brought forward the matter at the meeting at Bradford, that Mr. Hartop would have opposed them in the same manner as he has done Messrs. Graham and Co.

With respect to the controversy as to the qualities of the hot and cold-blast iron, I must be allowed to say, with all due deference to my friends, Messrs. Graham and Hartop, that, in my humble opinion, they have both of them placed themselves in rather a false position, if I may be allowed the expression, by the pertinacity with which they have each of them adhered to their previously formed opinions, and thereby prevented themselves from examining carefully and impartially the evidence brought forward on each side of the question, so as to form a correct and unprejudiced judgment in the matter, and I regret this the more, as I don't know any two individuals better calculated, both from their great practical, as well as scientific, knowledge of the subject, to investigate this very important and interesting question, providing they could enter upon the consideration of it perfectly free from all bias and prejudice, but of this I am afraid there is now little or no chance. Although I have no interest in this question, either as an ironmaster or engineer, yet, as a scientific question, I should like to have the subject again investigated by some perfectly impartial and competent individuals, with a view, if possible, of arriving at something approaching to a correct opinion on the matter, as it appears to me, on examining the experiments of Messrs. Fairbairn and Hodgkinson, in the 6th volume of the *Report of the British Association*, that No. 1 cast-iron is invariably deteriorated in quality by the use of the hot-blast, whereas No. 2 cast-iron is, in some cases, deteriorated, whilst in others it is either not injured, or else it is improved by it; and, again No. 3 iron is almost invariably improved in quality by the process. Now, Sir, it does appear to me that these are facts of great interest, and worthy of further investigation, and, in addition to this, I think it would be well to have the different specimens used in the experiments also submitted to a correct and rigid chemical analysis, in order to see if there is any very important difference in the constitution of the metal, so as to ascertain, if possible, whether the difference in quality arises from the difference in the constituent particles of the metal, or in its molecular constitution. J. H.

[Had our correspondent confined his letter to a dozen lines, we think he would have well conveyed his meaning, without occupying space which precludes the insertion of other matter. We are most anxious to please all, but we fear, if correspondents will carry their remarks to so unnecessary a length, we shall, in our endeavours to please, be placed in the same position as in the fable, narrated under the title of "The Old Man and his Ass." Facts are best understood when simply related.]

## THE COLD AND HOT-BLAST QUESTION—MR. HARTOP AND MESSRS. GRAHAM AND CO.

Sir,—In answer to Messrs. Graham and Co.'s letter of the 5th inst., wherein, in allusion to my letter in your Journal of the 31st ult., they express a fear that I must have sufficiently wearied your readers with the subject, I think I may fairly depend upon the importance of it to society, so far as to rest satisfied that, however convenient for Messrs. Graham to overlook, the public will not have forgotten that that letter was in refutation of their observation—"that I had made an inviolable allusion to the Milton iron;" and I don't doubt it will be still further convenient to them, should they succeed in persuading your readers that I undertook this discussion from feelings of private animosity towards them. In contradiction to that easy made assertion, I would remind them of sending their clerk to the meeting of the West Riding Geological and Polytechnic Society, held at Sheffield in April last, with the avowed intention of disproving such facts as I possessed, had my first paper been then read, the contents of which they could not have known; and yet Messrs. Graham have the effrontery to say, in the same letter, they never professed to stand forward as the advocates of hot-blast, and that it was never their intention to take part in any public discussion of the subject. I have, however, long since ceased to believe what any man says, if in direct opposition to what he does, and, at least, show that the controversy between Messrs. Graham and myself on this subject was not begun by me, as they would insinuate, but by themselves or some parties from the Milton Works. Messrs. Graham's experiments, which they are pleased to say, have been so fully made need not have been made, if only intended to show that the Milton materials will make good iron, even with hot-blast, with the assistance of the red hematite iron ore, charcoal iron, &c., that being well known to all in this neighbourhood, but they had never slipped at that point; why go on and attempt to show that their hot-blast iron (if they are not its advocates) was so much better than their cold-blast iron, in contradistinction to equally fairly made experiments by five different parties, each, at the least, as respectable as themselves, by which it is quite clear, that in the strongest, strongest, Graham have, by their own act, introduced the whole of this public work, but being particularly anxious to bring forward such results only from very respectable parties, I trust it will be found I am fully equal to resist any insinuations that may be produced from the Milton Iron-Works, and that without affecting the required position. Not having the pleasure of knowing Mr. Hartop, I most gladly acquiesce in that profession, it is in the warmth of this discussion, I have said nothing which would, in reality, have been his feelings, and beg to assure him I had no such intention. If you, Mr. Hartop, will call to the latter part of my notice of the 10th ult., you will find the words "with confidence" interspersed in your Journal of the 14th of December last, it being confirmed, and with that admission, I think you will have some difficulty in facing such a statement, as, in any way, to justify, even from Messrs. Graham, the words "disputed," "contested," "contestedly," "disputedly," &c., from all of which it will, I think, be inferred that the fact ascertained on the hot-blast side the question, is to be the worst one, so to require the testimony to be brought fairly, for long sentences words, to take place of honest straightforward reasoning.

seeing, also nicknames under fictitious signatures, all of which forebode a speedy relief to your wearied readers on this subject.

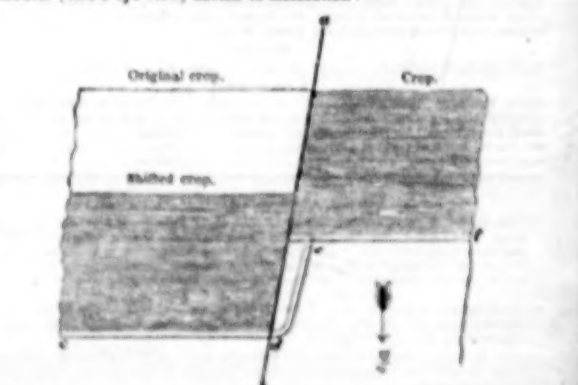
In answer to Messrs. Graham's friend, who, I suppose, would get into your good graces, by signing himself "An Original Subscriber," I would say, that after indulging in a little curiosity at Mr. Crane's, to gratify his friends, says that my letter has slipped to, contains no facts you have not already printed, which assertion will be found false by any persons giving themselves the trouble of comparing it with my first paper; but should any of your general readers think that the letter in question contained a greater repetition of facts than the case required, I would simply remind them that that letter was written for the purpose of rebutting a falsehood from the other side, and with a full conviction on my mind that some of the scribblers under fictitious names, as well as many of your readers, had not seen my former papers on this subject. With respect to the very important communication which "An Original Subscriber" makes to you, of my having been ejected from the Milton Works, he ends with an unfortunate observation, when he supposes for a moment I ever can forget that circumstance; so far, however, from retaining the feeling he describes, I can assure you, Sir, I have ever since considered it as one of the most fortunate of my life, when I remember that with the Milton Iron Works, I was relieved from all connection with those who now call themselves its masters; and I trust the public will bear in mind that the wide difference in the current price between cold and hot-blast iron was established at 32s. 6d. per ton before my first paper on the subject appeared, that in that paper no other allusion was made to the Milton iron by name than was useful, and that in common with many other iron, it was to be established the case I have undertaken for the public, and the British iron trade in particular. I have, therefore, I hope, good reason to think the case will not suffer much in my hands, of which should there be any fear, rest assured I have many kind friends at hand who will not fail to take up this question if needed, none of which I have yet found occasion to trouble, even under a fictitious name, whereby it seems every sort of falsehood is to be brought to bear, in the absence of true and sound argument; for we are at last told by your "Original Subscriber" that the iron I mention as having been sent to four different parties direct from Milton "could not possibly be genuine Milton iron." How the three last words single in my ears, when I remember what the genuine cold-blast iron from the Milton Works was in bygone days, a substance now left to us only in reminiscence, and retired "for a time only we will hope," to make room for new producers of many sorts, the fruits of the new hot-air system; for instance, we have all the different sorts and sizes, as formerly sent into the market, in addition to which we have the Milton hot-blast particular iron, as made for the Polytechnic and other cabinets, also the same make as intended for the experiments of practical men for their private information—this latter class has, however, been *thoroughly overhauled*, not for its own misdeeds, but its inherent constitutional weakness, by which it is disabled from all duty. I have next, and lastly, to call attention to rather a novel class, the production of the works in question—viz., *hot blast steel iron*—poor steel, and ironstone, how your superiority does enable your producer to keep its head above the waves of avarice and folly, and, as an old acquaintance, you have a right to expect a passing word from me; I may, as a new case, be allowed to call public attention and sympathy towards you; I am informed those who use you, send your produce forth to market at some 2d. per ton below other cold blast English steel iron; let us for a moment look into this for you, in order to do which, let us suppose that to make one ton of steel bar iron, it may take one ton and a half of No. 2 pig-iron, which, at the present price (No. 1 hot-blast being 21. 10s.), will be, at 21. 10s. per ton, or if, for the one ton and a half used, so that the deterioration of the value of steel iron in the market, by the use of hot air is very like the whole value of the pig-iron used in the process; or, if we take the only other view of your case, and put down the saving of 12s. 6d. in the hot air process of making a ton of No. 2 pig-iron, upon one ton and a half, will be 18s. 9d. saved per ton of bar-iron, against its deteriorated value of 60s. per ton—miserable policy for upholding the system of hot-blast. Your valuable subscriber concludes his letter by a copy of Mr. Horn's, to which I dare not again allude, under a fear of further risk of wearing your readers, and shall only express my regret that Mr. Horn should have been so drawn into this discussion. HENRY HARTOP.

Harborough Hall, Rotham, Jan. 9.

[We shall not, in justice to our correspondent, and also to Messrs. Graham, allow further communications to appear to which are not appended the names of the authors. It is at all times hateful to "stab in the dark," and where, as in the present discussion, personalities are, unfortunately, indulged in, and where impure motives are attributed, or implied, it is a duty we owe ourselves to exclude anonymous letters (although the writers may even be known to us). Our object is "fair play and no favour."]

## ON THE FORMATION OF MINERAL DEPOSITS.

Sir,—To those of your intelligent correspondents, objectors as well as approvers, who have honoured with notice and remarks my humble efforts to give descriptions of the faults, &c., in mineral deposits, I feel truly thankful, and shall endeavour to profit by both. As Mr. Deakin is "one of ourselves," I regret that he was not more courteous, and to have qualified a little his "positive denial" of the correctness of my statements, even although they were opposed to "his facts;" but "our order," Mr. Editor, ought not to be judged of by their manners (notwithstanding all that is said of the debasement of the masses, and particularly of miners)—in the better qualities of the head and heart they are inferior to no class in the community, and a better education, social and literary, than they have yet obtained, is due to them from the more favoured classes. I shall not, however, go into this subject at present, but to the consideration of Mr. Deakin's facts, as regards the upthrow. In my opinion he has given more of them than necessary, to prove the identity of the strata on both sides of the dislocation, and the probability of their being, at one time, on the same plane. Let us here recapitulate the evidence adduced by Mr. Deakin—"The dip of the strata on each side of the dislocation is nearly the same—about three inches to the yard—the line of dip being nearly west on both sides of the dislocation, which is in width nine feet, of wided confusion"—shattered and broken strata, no doubt. And, again, he says—"I will admit that the same veins might be seen on each side, and the same thickness, perhaps, and the same quality too." Here is, surely, a host of evidence to the purpose, and any exception, after this, can only go to prove the rule. With regard to what Mr. Deakin says of the difference between the two seams of iron mine, I expect he will yet himself allow that such is of small importance in the matter, as such changes often occur, without any break in the strata, and I beg to inform him that I have worked a coal mine with two feet of shale in the middle of the coal seam, on the rise of the coal-field, and the bed of shale reduced to only eight inches on the dip, and if such changes occur where there is no break in the strata, they are just as likely to occur where there is. Now, if we could suggest any probable agency that might have reduced the great China walls, which may, at one time, have been erected in South Wales, perhaps, Mr. Deakin may yet think the theory of a bursting not so very heterodox after all. I shall not, however, attempt the solution of this part of the subject, as all the natural philosophy I have got is only enough to convince me that I know nothing at all about it; but even thus much itself, I believe, is a step in advance of some of your correspondents. I shall only now beg to notice the apparent reduction of the elevated parts, subsequent to the heaving up. The shifting of the crop of the strata is proof of this, where the dislocations run from dip to rise in a coal field. Under is horizontal (bird's-eye view) sketch of dislocation:—



That which is shaded represents a portion of a coal-field drained by level; a b the line of dislocation; from c to d where the level is carried forward in the coal; at d the coal is sunk twenty fathoms; the level is then turned to the rise of the strata, "in the country," through the rocks, till it intersect the coal at e, when it proceeds as before in the coal towards f, the length of the cross-cut, d e (where the surface of the earth is level, and the dip of the surface uniform), will be exactly equal to the distance between the original crop and shifted crop on the upraised side of the dislocation. A WORKMAN.

## ON THE FORMATION OF MINERAL VEINS.

Sir,—In the pursuit of a mineral vein miners very often come to what is termed a *crop* (trap), the vein suddenly disappearing, without giving any warning by becoming narrower, or of worse quality. The method commonly used to recover the vein is to drive on the work in the direction of the former part, so that the new-work shall make the same angle with the clay, that the silver part does; or, otherwise, they sink a shaft down from the surface. Will your correspondents, "A Workman" and Mr.

Deakin, favour us with their experience in this matter? My own opinion is, that, in numerous cases, no dislocation has ever taken place, as affirmed by geologists—that such is the primary disposition of the sedimentary deposits, and I do think Mr. Deakin is right when he makes the like assertion with regard to the mine in which he has been working for this many years past. "T. H." speaks of the coal beds of Black Heath Mines, in Virginia State, North America; they rest, as he says, on gneiss rock, following the inequalities of the surface of the bed on which they rest, the seams appearing like steps, or notches, but they exhibit no accompanying marks of violence, every appearance favouring the idea of such being their primary disposition. The uniformity of appearance of the strata on each side of the fault is no proof of their having been once united, and, in numerous cases, there is very great dissimilarity.

Jan. 19.

#### ON THE FORMATION OF MINERAL VEINS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Your correspondent, "W. S.," thinks Mr. Budge and myself had better leave the speculative part of geology and mining alone—indeed, I have ever done so. I appeal to what I have said in the *Mining Journal* on the subject, and I will say, further, that all I have said in the matter is indisputable truth, and also that those truths are directly at variance with the speculating theories advanced by the schoolmen, from the first of them to the last. When I told "A Mining Captain" that the Blaenavon upthrow to the west ranged north, I intended it to mean true north. "W. S." says "the difference between two meridians in physical effects is a severe test of Mr. Hopkins's theory; had the line of dislocation been north-east, Deakin's upthrow would be on the eastern side." I am obliged to "W. S.," because he has given me an opportunity of setting aside Mr. Hopkins's theory altogether. Now, Sir, the 255 feet upthrow to the west is not the only upthrow in Blaenavon Mines; there are four more—those are upthrows to the east, opposite the place I write this; the west upthrow, and the one nearest to it, throwing up to the east, is 1000 yards apart. There are a pair of them running parallel with each other, only thirty yards apart, and each of them throwing up to the east thirty-three feet; the bearing of them is about sixteen west of north, so that, in a few miles to the north from this place, they go together. Now, what do you think of Mr. Hopkins's theory? This is no speculation; these are facts, which, as I have said before, are stubborn things. Mr. Editor, I would wish to answer any gentleman respectfully, and most especially any fellow of the Geological Society individually—at the same time, I must still say, that I have a poor opinion of them collectively. He does me the justice to say, that I have produced facts that are certainly against the idea of refitting the seams in the manner proposed by "A Workman." He says those dislocations, according to Mr. Hopkins's geological theory, have not been by vertical up and downthrows, but by a slow and imperceptible diagonal movement of masses to the northward; therefore (he continues to say), if there is a rise of 255 feet, there is a horizontal movement of at least 800 feet, to the north no doubt is his meaning. Now, if ever such a movement had taken place, and is still taking place, according to Mr. Hopkins's theory, surely, if such strange things as these are being in motion, the effects must have been noticed upon, as well as beneath, the earth. Some of the smaller upthrows to the east have been crossed by ancient colliers as long as coal has been used—perhaps, 300 years ago—and the larger ones half a century, and whenever we meet with the old men's roads crossing those faults, they seem to be as they had ever been—that is, the roads on both sides the fault, exactly opposite each other, which could not have been the case if there had been an horizontal movement going on to the north on one side the fault, and the other side stationary. He says, Mr. Hopkins informs us that the north and south lines are cleaved joints, but the east and west ones are fractures, and that I am wrong in stating that the east and west fault stopped the north and south one; the east and west crack has merely prevented the southern part from accompanying the uniform rising of the west side along the inclined plane northward. The inclined plane in the west side the north and south fault, northward, is not affected; it is at the angle of meeting of the north and south with the east and west fault. Beyond that angle of meeting of those two great faults, to the south, the north and south fault has never been seen; there is a small fault to be seen a few miles from the angle of meeting of the big faults on the same line of bearing as the east and west fault, and throwing down to the south as the big east and west fault does. I am asked the description and appearance of those faults. The north and south one I have crossed frequently, and, as I have told "A Mining Captain," the dislocation is about nine feet in width; that nine feet is mixed clunch, fire-clay, pieces of coal, rock, &c., both the sides generally smooth, not always so, in places rough and torn; if crossed in clunch and fire-clay, the sides are smooth; if crossed in rock, generally rough and uneven; where smooth it has a fine polish, grooved only where some stronger pieces from the sides have projected in the smooth part—the angle of the polish, of course, is the same as the dislocation itself, leaning over to the west about 2 in 100. He asks me, is Blaenavon coal cleaved?—it is. The gentleman that makes the inquiry says the east and west fault is a fracture. I will assure him it is not; it is a dislocation, and a very large one, but it is not so well examined and proved as is the north and south one, and there is a particular feature in it that opposes Mr. Hopkins's theory, and that is, its throwing down to the south some feet more than the north and south one throws up to the west.

THOMAS DEAKIN.

#### IMPORTANT IMPROVEMENT IN HYDRAULIC MACHINERY.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—For the benefit of all proprietors connected with mining operations, I beg to claim a place in your truly valuable Journal—the publicity of one of the largest and best constructed hydraulic machines yet erected. This gigantic machine is now working at the Alport Mines, near Bakewell, Derbyshire. Being in the neighbourhood, I felt anxious to pay it a visit, which is always readily granted by the proprietors and superintendents on the mine. The engine is a 30-inch diameter cylinder single acting, effective pressure per square inch on the piston about 60 lbs., length of stroke in the pump ten feet, plunger pole in the pit forty-two inches diameter, discharging at the pump head, when in full course of working, about 3600 gallons per minute. Here the visitor will stand wonder struck to see 600 gallons of water discharged by an hydraulic machine out of one pit in one-sixth of a minute. The magnitude, power, and quantity of water discharged, will be readily acknowledged by your numerous readers to be very great. Yet the man of science is tenfold more surprised when he looks at the beautiful arrangement the engineer has made to put this engine in motion. The man has effectually accomplished and surmounted the difficulties which has ever been the great evil to machines of this kind. It is well known that there is no expansion in this element while in the state of water, yet the engineer has found the most simple means to graduate the water at the extremity of the stroke, so as to cause not the least concussion whatever. You are also aware, in the ordinary way, to work an engine of this kind and power, the valves must be loaded with a ruinous weight—in this engine the valves are constantly in equilibrium. They open with their own weight, and shut with their own gravity; the engine is doing now 75 per cent. duty, and I believe will do more. I understand from Mr. Darlington, who is the engineer for the Alport Mining Company, that the celebrated George Stephenson, Esq., civil engineer, recently examined this engine, for the purpose of reporting to a Welsh company the merits of this machine. Mr. Stephenson expressed his entire satisfaction; and, from Mr. Stephenson's report, the Welsh party have fully decided upon having one of the same-sized cylinder. I am glad to say that the merits of this machine is in hands better capable of doing it justice than I am, and there is now making, at the Museum of Economic Geology, London, a most splendid model of this engine; when the model is completed, it is more than probable that John Taylor, Esq., whose talents respecting machinery and general science will not be disputed, will read a paper before the Institution of Civil Engineers, fully elucidating the various parts of this engine, which shall be generally known through the medium of your columns. It will, in my opinion, wherever there are facilities to work an engine of this kind, be universally adopted; certainly, there is much credit due to Mr. Darlington, who has been so fortunate as to construct an engine of this kind for the public use. It appears that Mr. Darlington, the inventor of this machine, does not intend to secure it by patent, but hopes that the advantages of the invention will ultimately become apparent, and all parties will see the benefit to be derived by adopting it—of course, he hopes to be remunerated for the use of his plans in some way or other. It must be obvious to every scientific man, whenever water can be concentrated into one focus, and worked to that advantage as it is in this engine, most ultimately (unbacked from propellers) supersede all other hydraulic machinery.

A SUBSCRIBER.

#### MR. JOSEPH WILLIAMS'S PRETENDED APPLICATION OF KURTZ'S PATENT.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I have now before me your last Journal, containing the diagram supplied by Mr. Joseph Williams, purporting to be the mode of applying Kurtz's patent, as adopted by him, in the Admiralty steam-packet, the *Urgent*. Now, Sir, I assert that this diagram is very far, indeed, from giving a correct idea of what he has introduced into that vessel, and by which the alleged saving was effected—viz., 600 tons of fuel in thirteen months, or 111 voyages of 250 miles each—a saving of about 10 per cent. Again, this diagram not only conveys no idea of what Mr. Kurtz's patent really is (and which Mr. Joseph Williams professes it to be), but is, in fact, an entire departure from it. This diagram, in truth, is evidence of nothing but the matchless effrontery of this ignorant pretender, in palming it upon the Admiralty as a legitimate application of a patent, which it is not, and thus, under false pretences, endeavouring to extract a consideration for the privilege of using it in other vessels; he will, however, yet be found out. I have myself, in company with several others, examined this pretended application of Kurtz's patent to the *Urgent*, and here state the following facts:—1st. That it is essentially different from that described in your last Journal; 2d, that it is entirely different from the patent of Mr. Kurtz, as laid down in his enrolled specification—see *Newton's Journal*, February, 1842; and, 3d, that it is a direct carrying out of the principle embodied in my patent—viz., not the heating, but the dividing or distributing the air in films or jets, on its admission to the furnace gases. That your readers may be enabled to judge for themselves on these points, I will furnish you with the requisite diagrams for your next publication, and of which I beg the insertion. You say, in conclusion—"We presume Mr. Joseph Williams, if not Mr. C. W. Williams, will notice this article in our next." You thus, apparently, would draw us both out. On my part, I accept your invitation, but, as to poor Joseph, this was an unkind, if not a wicked, sly hit on your part. It is probable, however, you have yet to learn, that, unfortunately for Joseph, the schoolmaster was not abroad in his schooling days, and that, as he himself observes, he is, therefore, "not a headstrong man." It appears, indeed, that, although his mother wit and low cunning have been assiduously cultivated, it was forgotten, that to teach him to read or write might have been useful. Far be it from me to utter this as a reproach to a man of his well known modest assurance. I merely mention it, *sub rosa*, as an apology for Joseph, and for his apparent neglect, should he not avail himself of your inviting appeal. It is possible, however, that a reply to my last letter, and to my advertisement in your Journal, cautioning the public against his impositions, as regards Kurtz's patent, may appear, although not from his own pen, while any attempt to associate his plan with that of Kurtz's patent, must, under any circumstances, be abortive. Should any such appear, I promise to reply, without regard to its real authorship, and as if it came from Joseph's own head and hand. In fact, unworthy and contemptible as he is, he shall be fully unmasked, either in your Journal, or by some other more searching means. I may here observe, that the assumption of Joseph Williams to the character of a man of science, and to a position in society which his assurance has not yet obtained for him, and which he has ignorantly promulgated in the expectation of making friends, is so notoriously false and well known in Liverpool and St. Helen's, that nothing short of putting you in possession of facts, from your evident want of knowledge of the party, would induce me to notice it. In thus expressing myself, I have only to refer, "in case of need," to Mr. André Kurtz, whose name has been so improperly mentioned by Mr. Joseph Williams, to satisfy you, or any of your readers, as to the character of the latter.

C. W. WILLIAMS.

Liverpool, Jan. 17.

[We defer making any observation on the letter of our correspondent until that promised appears—in the meanwhile, we may express a hope, that he will confine himself to matters of interest, and not to men, who, however they may have been neglected in their early days, and not be "headstrong" men, yet may possess talent and ability. We do not wish the remark to be considered as peculiarly applicable in the present instance, but the letter of Mr. Joseph Williams, inserted in another column, justifies us in the observation made, and which we feel our correspondent will duly appreciate.]

#### SMOKE PREVENTION.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Mr. Charles Wye Williams has again and again plumed himself, in the volumes of letters he has published in your very valuable Journal, upon his avoidance of all offensive language, and upon his observance towards his opponents of the utmost decorum, even when they had forgotten the conventional rules which are understood to govern gentlemen. If he had a right to so exult, it is to be regretted that in the conduct which he has thought fit to adopt towards me in print, he has offended against his own rules, and has forgotten what was due to himself, and to the Irish bar, of which he was once, if he is not now, a member.

In his letter of the 11th instant, published in your last Number, I am charged, not only with infringing upon his patent (for which, if true, he, as a barrister, must know that he has a remedy), but with "imposing upon the public"—with "a deception on the public"—with having "palmed on the public" a departure from Mr. Kurtz's patent, the only merit of which is his (Mr. Charles Wye Williams's) plan—that I should not be "suffered to rob him of his fair claims"—and he adds, "The Admiralty have full permission to adopt my patent; I merely ask that they do not employ others to carry into execution, and under false pretences—which I here charge on Mr. Joseph Williams—that which fairly belongs to me."

Now, I submit, Sir, that language like this would scarcely have been justifiable if a jury of my countrymen had found me guilty of an infringement of Mr. C. W. Williams's patent, and I had, in defiance of their verdict, persisted in infringing upon it. How inexcusable, then, it must appear to you, and to your intelligent readers, when, not only has no such legal right been established, but none has been asserted by Mr. C. W. Williams, in any legal proceeding; and when, at the very time, from your own observation (and of this Mr. C. W. Williams was aware, for he has quoted it), you stated that "so minute are the different modes adopted, that it is hard to say who is the inventor, and who is the infringer!" I will not, however, descend to the use of retaliatory language; I will content myself with the simple, but distinct, denial that I have infringed upon Mr. Charles Wye Williams's patent, in any part of the apparatus affixed to her Majesty's packet, the *Urgent*; and I invite him to try the fact before a Liverpool jury, at the next assizes. If he accepts my invitation, of course further discussion in your columns, on either side, would be out of place; if, on the other hand, he should not accept it, it can only be for one reason—viz., that he has made rash and unfounded assertions, which he dare not, and cannot, maintain; and, in such case, Mr. C. W. Williams will not be worthy of any further notice from yours, respectfully,

Belford street, Thurstall park, Jan. 18.

JOSEPH WILLIAMS.

P.S.—In the leading article of your last paper you say, as to Mr. Crane's patent, "It is a duty, we think, which Mr. Crane owes, not only to himself, but to all patentees, and to the public, to enforce his rights," and in this sentiment I fully agree.

[We trust that Mr. C. W. Williams will bring the question into a court of law for infringement of patent, or that Mr. Joseph Williams will take the verdict of a jury on the question of libel. If, however, both entertain the same opinion we hold of law and lawyers, we should say, the less they have to do with the one or other the better. Mr. C. W. Williams, in a letter in our present Number, states his intention of furnishing next week a letter, with diagrams, explanatory of the distinction between the respective patents, and pointing out the infringements more clearly. We await such communication as we may move, for we are bound, in justice to both parties, to afford further evidence, with explanations, so as to set ourselves right with our readers—while it will be most pleasing to ourselves that this discussion should be brought to a close.]

#### SMOKE PREVENTION.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Having taken a great deal of interest in the discussion of the smoke-prevention question, in your Journal, I was very much struck with the importance of the short statements in a letter signed "A Looker-on," in your Journal of the 7th, and, indeed, they appear to me to contain the whole of the merits of the case, as between Mr. C. Wye Williams and Mr. Samuel Hall, and I must say, I am much surprised that the former gentleman has not taken the slightest notice of them in his letter of the 11th instant, published in your last week's Journal. Your insertion of this letter, in order that no candid man's view of the subject may not be passed over without notice, will oblige

Birmingham, Jan. 18.

[Mr. Samuel Hall having retired from the field of controversy, we are not surprised that Mr. C. W. Williams should have passed by, unmentioned, the letter of an anonymous correspondent. We must again repeat, that, except

under peculiar circumstances, the further discussion of this question must be between parties who are not ashamed of their names being attached to their communications.]

#### DURHAM COUNTY COAL COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—After all the crimination and recrimination which took place at the meetings of this company two years ago, I did hope we should have had peace, and we, unfortunate shareholders, might expect some dividend; but I am sorry to find, by your last week's paper, and from a statement I have received from Mr. M. Dunn, the discharged viewer of the company, that things are just as bad, if not worse, than ever. The conduct of Messrs. Stokes and Andrews towards Mr. Dunn does appear to me most unaccountable, and I have no doubt will bring upon them the condemnation of all the shareholders. I always thought, from the first time I attended the meetings, that these men, Stokes and Andrews, acted towards certain individuals, who seemed, from some reason or other, to be obnoxious to them, very unworthily, and I am, therefore, the less surprised at their conduct in this instance. It was entirely by their conduct towards Mr. T. C. Gibson, of Newcastle, that the company was deprived of that gentleman's able assistance in the management of the company's complicated concerns, by their attempt to mix him up with the A's and the B's in the getting up of this ruinous concern, when, in fact, it was clear to any man of common sense who attended the meetings, that he was not even a shareholder for nearly two years after the company was formed, and had only been reduced into it, as many more were, by the fallacious and dishonest valuations of the viewers, without whose aid it would have been impossible for all the A's and B's together to have succeeded, as sure I am, no one would have gone into it on the recommendation of men of the description of the A's and B's. Mr. Gibson was at the time, and, I believe, is still, the largest shareholder in the company; and, from all that I can learn of the character of that gentleman, and I have given myself some trouble to do it, I have come to this opinion—that if the directors, three years ago, had let him have his own way, and followed his advice, the affairs of the company would have been in a very different state from what they are in at present. What has vexed me most of late is, that this very Stokes, I find, was one of the originators of the company himself, and, as to his fitness for the office of manager of the company, it is absurd; and, as to Mr. Andrews, if Mr. Dunn proves his statements at the ensuing meeting, he will not be able to play the great man any longer in this quarter. And now, Mr. Editor, in conclusion, all I wish is, that the shareholders, at the next meeting, which will be a stormy one, will not suffer themselves to be led by the nose by any party, but act upon their own judgment. My opinion is, that if the company has lost money the current half-year, we must insist upon its being broken up, and the property sold to pay the debts, or depend upon it we shall have another call to pay upon our shares. I do not know what is the amount of the debt the company is in, but from what I can learn, I think the property of the company would sell for as much as would pay it off, and give the shareholders 3d. or 4d. a share besides, if properly managed.

Richmond, Jan. 10.

A SHAREHOLDER.

[Some remarks on the questions raised by Mr. Dunn will be found in another column. We are not sufficiently "far north" to be in possession of information beyond that rendered by correspondents, and, therefore, we precluded from offering any observations, except as affects the articles which appear in the Journal. We regret to find that fresh frauds and dissensions have arisen, and think that the sooner the concern is brought to a close, or the affairs put into "good hands," where no jealousy exists (whether directors or viewers), the better.]

#### THE INEFFECTUENCY OF WOOD PAVEMENTS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Having watched, with some degree of interest, the progress which has of late years been made in paving our streets with wood, I am pleased to see that at length the public are aroused to a due consideration of the terrible state in which those of our thoroughfares are placed which have been "improved," as it is erroneously called, by the innovation of wood paving. Glad, indeed, was I to find that Sir Peter Laurie had taken upon himself the task of directing the attention of the Court of Aldermen to the subject; and much credit is due to him, as well as to Alderman Copeland, and other members of the court, for the spirited and determined manner in which they met the question. That wood paving does not realize the advantages at first held out is evident; however firm and solid the work, in the first instance, may have appeared, after eighteen months' or two years' wear, in conjunction with the effects of the water, which percolates through the joints, and, remaining on the subsoil, the lower part of the wood becomes rotten, and causes the pavement to sink in some places, thus forming inequalities in the road of a most unpleasant and dangerous nature; even in its best state, there are so many objections to wood pavement, that its immediate rejection is imperatively called for. Sir Peter Laurie, Alderman Copeland, and a host of gentlemen, who are in the habit of driving through the streets of London, bear such indubitable testimony to the dangers inseparable from the plan of paving with wood, that it is to be hoped that parliamentary interference may be wisely calculated upon. The fact is undoubted that since the very general adoption of wood paving, street accidents have increased at least one-third, and several cases have occurred of drivers of omnibuses and cabs being acquitted on trial for running over parties, it having been proved that it was impossible to exercise any control over horses on such a perilous surface. In the United States, it is now generally considered a decided failure; so much so, that in New York, Philadelphia, &c., considerable surfaces are being removed, and superseded by blocks of granite, and, in some instances, streets are re-paved with the old water-worn pebbles. The one great advantage of wood paving—that of preventing noise—I contend experience has proved does not counterbalance its various, and now generally acknowledged, disadvantages, and I cannot help thinking the time is not far distant when our best description of granite paving will again be brought into general use; indeed, it is to be hoped such will be the case, if only for the sake of the horses, for what they now suffer, while scrambling over wood pavements, is a disgrace to humanity.

W. G. M.

Minden-terrace, Regent's park, Jan. 18.

[As our correspondent has authenticated his letter, we feel called upon to give it insertion; at the same time, it must be understood, we do not go quite so far in repudiation of wood paving. We are aware of many of its serious evils; but improvements may yet be made—indeed, a very excellent one has already been suggested in our columns—by which a foothold for the horse, as well as a more lasting and even surface, may be secured. We recommend our correspondent to pursue some communications on this subject, by Mr. Farin and others, which appeared in our columns some time since, as well as the advertisement in our present Number.]

#### KELLEWERRIS MINING COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Whatever your correspondent's motives may be for inquiring if any dividend was made by the Kellewerris Mining Company, is best known to himself, but I have no doubt it is to lower the directors in the estimation of the public. However, I can assure him that there was a dividend declared, at the rate of 10 per cent. on the paid-up capital, and paid to every contributor in November, 1836, as the books to this day will testify.

Richmond, Jan. 17.

[We believe our correspondent is studying the art of "bamboozing." The directors, we believe, are already too far interested in public estimation to descend further, while the dividend paid, of 10 per cent., should have been said to be out of, and not on, "the paid-up capital."]

#### BLAST-ENGINE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—In the last *Mining Journal*, a Mr. Farrier, of the Clyde Iron Works, wishes to know the cause of the variation in the mercurial gauge in the different blast pipes leading from the same engine, and shewing three furnaces on the one side and one on the other. As the works where I am engaged we are similarly situated. Our furnaces are the same size, making use of the same material; the size of the blast pipe leading from the chimney to the three furnaces is thirty inches in diameter, and the diameter of the leading pipe to the single furnace is eighteen inches diameter; our tuyeres are the same size. I have applied the mercurial gauge at the top of every furnace; I cannot find any variation whatever. Will Mr. Farrier be kind enough to find the distribution of the respective blast pipes leading to the furnaces, and the number of pounds, if any, in each main? It will give me some idea, as I may expect an answer to his query. We have not a mercurial gauge anywhere.

Merthyr Tydfil, Jan. 14.



